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Ultra-Violet Radiation in Veterinary Practice.*

By F. H. STAINTON, F.R.C.V.S., Kensington.

INTRODUCTORY AND HISTORICAL. In support of the statement that "there is nothing new under the sun," it may be said that light therapy is almost as old as man himself. The ancient Egyptians not only worshipped the sun for the benefit of their souls, but recognised the curative effects which his life-giving rays exerted on their bodies. As early as 350 B.C. Aristotle noted the effect of light in producing green colouring in plant life. The cultured Greeks and Romans believed in the efficacy of sunlight as a prophylactic and cure. Their medical men prescribed it and the richer members of society had their "solaria" or "light rooms" as a matter of course.

In spite of such early realisation that growth and very existence are dependent on light, analytical research into radiant energy is a study of comparatively modern times. Sheppard has expressed the situation very aptly thus:—"We are only at the beginning of the conscious utilisation of the powers of light as distinct from the unconscious enjoyment of them."

Isaac Newton's discovery of the visible spectrum and its component parts marked the first step in the exploration of the field of radiant energy. The existence of an invisible spectrum was established by Henschel in 1800. He placed a thermometer beyond the red end of the spectrum and noted a rise of temperature. This proved the existence of invisible heat waves which were termed infra-red.

In 1777 Scheele, by projecting the visible spectrum upon silver chloride, noted the production of metallic silver in the region of the violet rays. This paved the way for the discovery by Ritter in 1801 of the ultra-violet region.

The first systematic use of light, as a therapeutic agent, must be credited to Finsen who, in 1893, published the results of sunlight treatment in cases of tuberculosis. His and subsequent research demonstrated that the ultra-violet rays were responsible for most of the curative effects.

Unfortunately, these rays, potent as they may be, have very little penetrating power and are completely cut off by moist and smoky atmosphere. Consequently, only a very minute fraction of the rays actually reach us from the sun.

The discovery by Peter Cooper Hewitt that he could produce ultra-violet rays artificially and to order, by means of a mercury vapour quartz lamp, was the starting point of a rapid advance in the knowledge and use of ultra-violet light.

In the early days of ultra-violet therapy, cost was an important consideration. Progress, however, both scientific and technical, has been so rapid that we have, to-day, a choice of a number of efficient and adequate sources of ultra-violet light which can be bought and operated on a commercial basis.

Finally, to justify the abandonment of the sun (the natural but uncontrolled source of ultra-violet rays) in favour of mechanical production, I will quote Hall:—"Pure sunlight, unaltered by moisture or smoke in the atmosphere, such as is obtainable in the High Alps, contains but half an octave of ultra-violet rays. From artificial sources we have at our disposal, in quality, a full octave while, in quantity, we have the equivalent of a whole day of bright sunlight in a matter of minutes."

This comparison of efficiency has been emphasised by the statement of Dr. Arnstad to the effect that:—"The sun and the ultra-violet rays bear much the same relation to one another as crude drugs do to their synthetically prepared chemical substitutes."

Humphries amplified this statement by comparing the administration of a decoction of poppy heads as against the hypodermic injection of morphine for the relief of pain. Moreover, he pointed out that it is this accuracy of dose in actinotherapy which makes for the superiority of controlled artificial sunlight over nature's best efforts.

Dr. Paccini, not so long ago, observed that "ultra-violet therapy has now reached an era of quantitative investigation." This was somewhat prophetic at the time, but has since become an established fact in a general way.

There still remains a lack of exact information (both qualitative and quantitative) as regards *pure* ultra-violet rays and of individual components of the spectrum. The value of the infra-red is beyond dispute and it is reasonable to suppose that each ray of the visible spectrum has some part to play.

Before any regional dosage can be established, the scientist must solve the problem of separating these rays one from the other—so that their individual properties can be observed. This is no mean task and entails, among other difficulties, the design and plant of very costly apparatus.

However, to quote Paccini again:—"As our knowledge of the physical qualities of this energy increases and its biological action becomes better understood, so will much of the empiricism, that has hitherto hindered its development, be dissipated."

DEFINITION AND STANDARDISATION. The spectrum of sunlight, as discovered by Newton, consisted of seven primary colours (R.O.Y.G.B.I.V.) produced by *visible rays*. Subsequent discoveries, relating to *invisible rays*, have resulted in the present knowledge that the visible spectrum represents a very small portion of the complete spectrum of radiant energy.

Luckiesh has gone so far as to say that if the entire spectrum could be produced, so that the visible portion occupied twelve inches, then the complete spectrum would be several million miles in length. Staggering as this statement may seem, it must be realised that the complete gamut includes the Herzian waves of wireless, the X-rays and the Y-rays of radium with, no doubt, many others to be discovered. As Ellis and Wells have expressed it:—"We now know that in all the phenomena of radiant energy, beginning with the low frequencies of wireless telegraphy, through the infra-red, into the visible and then out into the invisible ultra-violet and from there on out to the region of X-rays—we are dealing with a single phenomenon varying only in wave length and rate of vibration."

Light itself has been defined by Sir Oliver Lodge as an electro-magnetic disturbance of the ether—and this applies to all the spectral phenomena in that, for standardisation purposes, one must speak in terms of waves. The standard generally adopted is the *Angstrom unit* which may be defined as a unit of wave length measurement whose length is one ten-millionth of a millimetre.

Some authorities speak in terms of the micron and millimicron, but these units are relative in factors of ten and easily converted, as seen by the following table:—

Unit.	Symbol.	Millimetres.
Angstrom	A°	$\frac{1}{10000000}$
Millimicron	$\mu\mu$	$\frac{1}{1000000}$
Micron	μ	$\frac{1}{1000}$

* Presented to the Central Division on 7th April, 1927.

Frequency is calculated by dividing the known velocity (say, 186,300 miles per second) by the wave length. Thus, the shorter the wave length, the more rapid is its vibratory frequency.

As regards frequency—the spectrum is divided into octaves. Luminous light comprises but one octave out of something like 60 known octaves.

In terms of Angstrom units or wave lengths, the luminous spectrum ranges between 7,700 and 3,900.

SOURCES OF ULTRA-VIOLET LIGHT. Innumerable types and patterns of lamp have been devised but, for the sake of brevity, I shall only mention three which have proved useful in veterinary work, namely :—

(1) *Mercury Vapour* < Air cooled. Water cooled.

(2) *Loaded Carbon Arc.*

(3) *Tungsten Arc.*

The two types of mercury vapour lamp differ in that :—

(*a*) The *air cooled* gives a *long wave* length or excess of *near* ultra-violet intensity. The advantage claimed is that of *greater penetration.*

(*b*) The *water cooled* gives a *short wave* length with a relative preponderance of *far* ultra-violet light. Its action is said to be more *germicidal.* This type, as represented by the Krohmeyer lamp, has the advantage that it can be applied locally (both internal and external) by means of the quartz crystal transmitter.

The *loaded carbon arc* not only has the advantage of supplying heat, but has the reputation of more nearly approximating the solar spectrum while giving an ideal proportion of ultra-violet rays.

As regards the virtues of these types of apparatus, I shall dispense with theory and express the result of my own practical experience.

Mercury vapour lamps seem to be suitable in certain superficial conditions and the Krohmeyer furnishes a means of local cavity application, but for general purposes the loaded carbon lamp is far superior. The carbons contain metallic cores of iron, calcium, boron, etc.

My own conclusion is that the best equipment for the general practitioner is :—

(1) The Arnold 4-arc alpine lamp for general and large area treatment.

(2) A single pole tungsten lamp for local work.

TECHNIQUE. The first question is that of dosage, or time exposure. In human practice, the primary gauge is that of reaction to irradiation in the form of degrees of erythema. Personal idiosyncracy, as regards skin sensibility and other factors, obviates any definite law.

In veterinary practice we have little to guide us except experience. Patton states that dogs of a dark colour stand more radiation than light fine-haired ones and that dogs vary considerably in their degree of sensitiveness.

I have only seen one case of burning in the dog and that over a shaved area. The presumption is that supersensitiveness is rare.

The patient is placed in a position at right angles to the rays and sufficiently near (carbon arc) to receive a comfortable warmth. The eyes are protected either by goggles or by placing a blanket over the head. Very little restraint is necessary, as dogs appear to derive a soothing effect from the experience. The skin is exposed either by shaving the area to be irradiated or by combing back the coat. Damping facilitates this.

Length and frequency of dosage varies from two to ten minutes either daily or at intervals of two or three days.

THEORIES OF ACTION. The ultra violet ray is also known as the *Actinic* ray from its power to excite chemical action, as, for instance, on a photographic plate. In all reactions, whether photo-chemical, photolytical or photosynthetic, it is said to function as a catalyst.

The chemical activity of light, in general, depends upon wave length, frequency of vibration and amount absorbed. According to the Grotthus law, light cannot act unless absorbed. According to Hall, the long ultra-violet waves penetrate to subcutaneous tissues and are there converted into heat waves and absorbed. The short waves only penetrate as far as the horny layer of skin. The medium wave lengths are those which produce the greatest physiological effects upon the body, namely, from 3,000A° to 2,000 A°. These waves penetrate the skin as far as the blood vascular layer, where most of them are absorbed. They first stimulate the nerve endings of the skin, sensory, trophic and sympathetic. The immediate effect on the pressor-depressor system is a vaso-dilation followed by erythema.

Another viewpoint is based on the fact that the skin and its appendages (teeth and nails) become fluorescent on exposure to ultra-violet light. This is said to be due to hæmatoporphyrin and other substances which stimulate the sensory nerves to produce a reflex dilatation of the vessels of skin and subcutaneous tissues.

The penetrative power of ultra-violet light is very small, however, and Dr. Eidenow has pointed out that " the probable solution of the problem lies in the proved fact that an erythema dose of light will produce a leucocytosis beneath the skin, and to the activation and absorption of the ergostearol present in skin and sweat glands. It has been shown that ergostearol is allied to cholesterol and that, when irradiated, is the potent factor in preventing rickets." Cholesterol is a substance occurring in almost every animal cell and therefore plentiful in the skin. It undergoes changes, when exposed to ultra-violet light, and develops anti-rachitic powers which it did not previously possess.

Ultra-violet light is said to increase the *bactericidal power* of blood, the region of bactericidal activity being greatest between 2,960 A° and 2,100 A°. Some authorities have ascribed this to the production of oxidising agents such as ozone. Although the formation of ozone is easily demonstrable this alone does not afford an adequate solution.

Ellis and Wells regard the action as a direct one due to absorption, by the protein molecule, of the lethal rays.

In spite of every theory and every established fact, the trend of present day thought is that of criticism of the limitations of ultra-violet therapy.

While recognising the limitations, one is bound to accept what definite evidence we have of therapeutic value.

THERAPEUTIC APPLICATIONS. Probably the most useful scope of ultra-violet light lies in the treatment of dermatological conditions, although recent researches are beginning to establish its value in diseases of malnutrition.

Results in certain skin affections, such as chronic ulcers, are patent to the eye and sometimes amazingly rapid.

In general and deficiency diseases the effects are not so dramatic and frequently must be determined by elaborate metabolic experiment and calculation.

My personal experience is limited to small animal practice and, from the clinician's standpoint, cases treated in hospital can be classified roughly under three headings, namely :—

(1) Skin affections, ulcers, etc.

(2) Nervous disorders.

(3) General conditions of malnutrition, rickets, distemper, chorea, etc.

The time at our disposal does not allow of any detailed discussion, nor of an irksome recital of case records, but in a general review it may be advantageous to quote a few specific cases.

The first case worthy of note is that of an indolent ulcer which had resisted every sort of treatment, including operative, over a period of nine or ten months. The ulcer involved a large area of skin over the metacarpus of a Spaniel dog. The skin in this region is adherent to underlying tissues, tense and inelastic.

One hesitates, even, to remove a benignant growth, on account of the difficulty of closing the operation wound by sutures. Healing by granulation has its limitations in replacement of lost tissue. The results in this particular case are quite remarkable and can only be ascribed to the stimulus of ultra-violet light. The original photo (exhibited) shows the extent of lesion and the smaller reproductions

indicate progress over a period of one month with daily exposures of six minutes with the loaded arc.

Dr. Dore, in a recent discussion, put forward the suggestion that sweating might, in part, account for the results in treatment of cutaneous diseases. In this connection, I may say that during irradiation of this particular ulcer there was always a marked sweating or lymph exudation. According to my own observations, this is not a constant feature in treatment of ulcers, wounds, or desquamated areas, but its appearance is always a welcome indication of "something doing."

Results are equally good in the treatment of acute and necrotic ulcers (particularly of the mouth and lips) and of stagnant operation wounds. For these and similar conditions one has come to regard irradiation as a specific. The following two instances of pyorrhœa with ulcerative stomatitis might be cited as examples of otherwise intractable cases which responded to ultra-violet light:—

(1) *Subject.*—Airedale, eight years old, with advanced pyorrhœa and ulcerated gums of eighteen months' standing.
Treatment.—Daily exposure of five minutes for three weeks.
Result.—Complete recovery.

(2) *Subject.*—Skye terrier, twelve years' old, with very advanced pyorrhœa of three years' standing. The mouth was a mass of septic ulcers accompanied by an odour appreciable at a distance of two feet from the dog.
Treatment.—Daily exposure of ten minutes for ten days. At this stage there was marked improvement. Treatment was discontinued for two weeks and then resumed three times weekly.
Result.—Great improvement; although craters of old ulcers existed, they were healthy in appearance and the smell (previously intolerable) had been abolished.

Moist Suppurative Eczema responds rapidly to carbon arc irradiation. A typical instance is that of a Bulldog with a large patch of purulent periodic eczema on the back of the neck. The present attack had been in existence on and off for two months. Only two exposures of six minutes each were required to effect a cure.

This case is representative of a large number which have been treated with similar results. As a rule, complete resolution may be expected in from two to five days. After the second dose, the patients show little desire to scratch. The first exposure sometimes results in increased sensitization, but the sedative effect of the ultra-violet rays soon follows. This analgesic property has been noted and utilised in the treatment of pruritus ani—anal adenoma.

Blepharitis is another instance of a condition frequently resistant to ordinary remedies, but almost invariably responsive to irradiation.

Purulent Otitis has been treated successfully, but results are not consistent. The method of application is by focussing a tungsten arc lamp through a dilator, but it is not always easy to reach the seat of the trouble. It is hoped that, by use of the quartz applicator, a higher percentage of cures may be obtained.

Alopecia in the human is said to be treated successfully by ultra-violet light, but I have been unable to obtain any very marked results in true alopecia of the dog. It is obvious that the hyperæmia produced by irradiation must have a stimulating effect on any hair roots present and it is noticeable that, in treating skin diseases and in treating patches where it has been necessary to shave, the hair grows very rapidly over the denuded areas under treatment.

Nervous Disorders treated include such conditions as pachymeningitis, cerebellar ataxia, loss of co-ordination after distemper, neuritis, etc. Results in these cases may be described as more or less negative. During the course of some of these cases there was marked improvement in spirits, condition and tone of reflexes, but there was no direct evidence that this was due to irradiation any more than to the healing effect of time.

General Conditions. In human practice the field of application of ultra-violet light seems almost without limit. Its uses cover diseases of the respiratory, circulatory, alimentary, genito-urinary, and sensory systems.

At the present time, our knowledge of useful application on such a wide scale in veterinary practice is somewhat limited. Distemper and its complications may supply examples of almost any form of systemic disease. The course of distemper itself does not appear to be influenced in any way by ultra-violet light.

Generally speaking, caution is necessary in assessing results. Often it might be argued that benefits claimed for ultra-violet light might be due, equally well, to the diet and other factors in force at the time.

Deficiency Disease. It has been proved beyond question that ultra-violet rays have a controlling influence on calcium and phosphorus metabolism. Any agent which has the property of increasing the calcium and phosphorus content must have a high therapeutic value in the treatment of such diseases as rickets.

Rickets has been described as a disease not only of calcium, phosphorus and vitamin deficiency, but also of light deficiency. One knows, as a matter of practical experience, that if young puppies are confined in ill-lighted and confined quarters for any length of time, the chances are that they will develop rickets in spite of receiving ideal anti-rachitic food.

The calcium and phosphorus increase in the blood is due to increased absorption from the bowel. It follows that the therapeutic action of the light will be assisted by the oral administration of calcium and phosphorus in their various forms during irradiation. It is impossible to review the mass of work which has been done by various workers in this field. Some of the earlier experiments were carried out on rats. It was shown that rats kept in darkness and deprived of certain food factors developed rickets. The development of rickets was checked, however, by ultra-violet radiation.

Orr, Henderson and Crichton recently carried out experiments in which pigs and lactating goats were exposed to ultra violet light for fixed periods. They found that the amount of calcium and phosphorus which the animal is enabled to absorb from the intestines is definitely increased by irradiation. It was found also that the bones of an irradiated pig showed a markedly higher phosphorus and calcium content than did those of the control pig subjected to similar conditions but not irradiated.

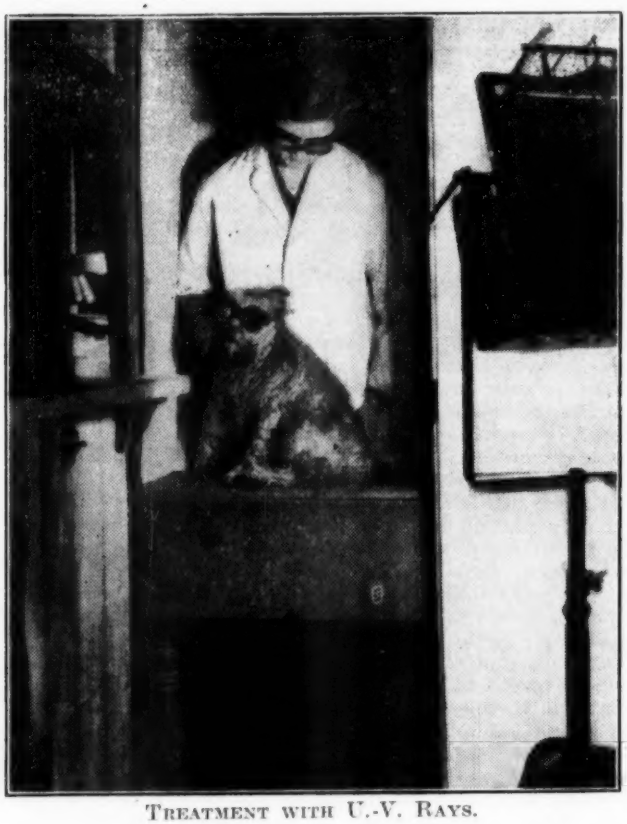
The lactating animal, in providing the calcium and phosphorus of her milk is generally losing more from her own skeleton than she is capable, on an ordinary ration, of absorbing from her food. The authors point out that "while this process is to some extent normal and the natural sequence to the activity in calcium and phosphorus storage which takes place during the dry period, it is obvious that this may proceed to harmful limits."

In these experiments, there was not only an increase of calcium and phosphorus fixation, but in one case, when the animal was actually losing more calcium and phosphorus than she was taking in, it was possible to convert the negative balance to a positive one, *i.e.*, she was able, as a result of irradiation, to replenish her depleted store.

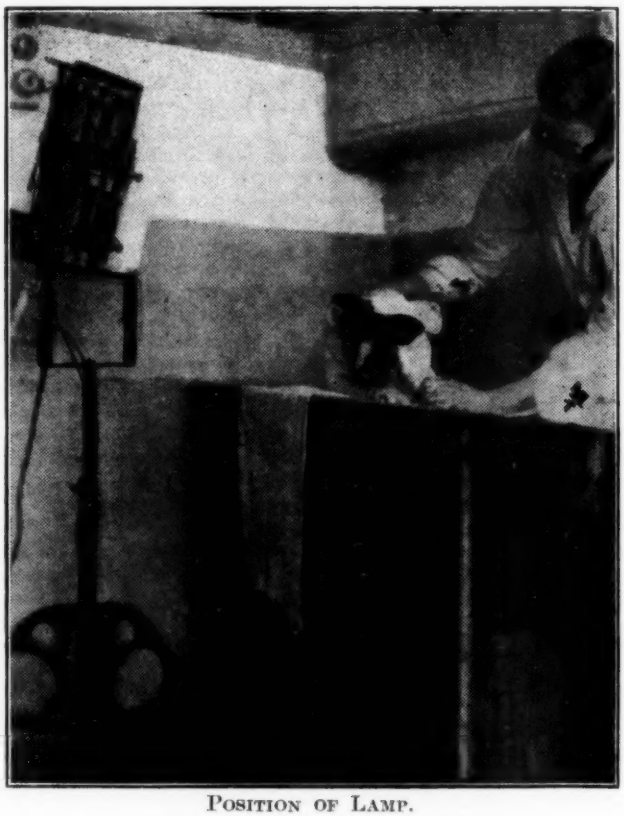
Hume and Smith, working at the Lister Institute, point out the prevalence of rickets in monkeys brought to this country. Anti-rachitic diet is not in itself sufficient protection and moreover the subjects will not always take to the ideal food. Their experiments, however, go to show that rickets can be cured and prevented by irradiation.

It has not been claimed by any investigator that irradiation does more than facilitate absorption. The amount of available mineral to be absorbed will depend primarily on the nature and balance of ration or by the presence of administered adjuvants in the shape of calcium and phosphorus salts.

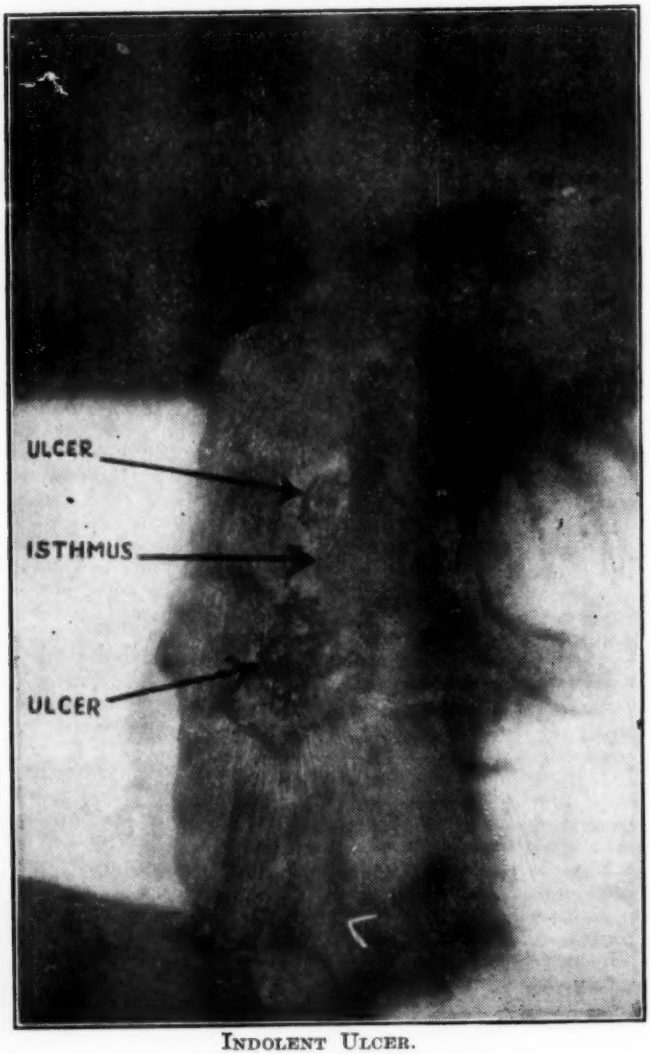
In connection with food, it is interesting to note that recent investigations by Steenbock, Hess and others go to show that the feeding value of certain foodstuffs is considerably enhanced by exposure to ultra-violet light.



TREATMENT WITH U.-V. RAYS.



POSITION OF LAMP.



INDOLENT ULCER.
Actual size.

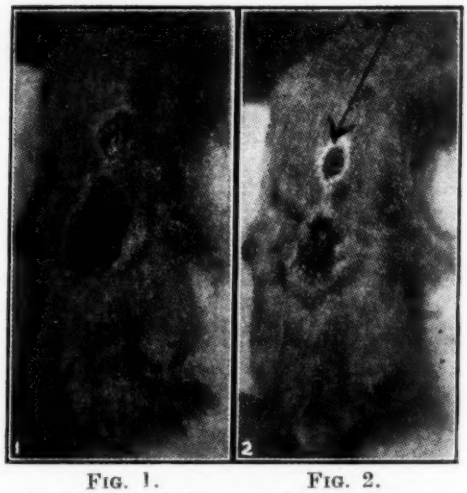


FIG. 1.
Original size of ulcer.

FIG. 2.
After 7 days.

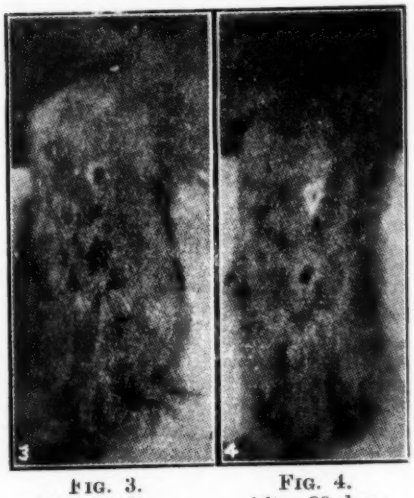


FIG. 3.
After 14 days.

FIG. 4.
After 30 days.

Actual size.

Reproduced from *Veterinary Journal*, July, 1926.

Irradiation results in the formation of an anti-rachitic vitamin *outside the body*. The activity of cod liver oil is greatly increased by exposure to ultra-violet rays. I am not in a position to speak of any action on the endocrine glands, but perhaps Dr. Halls Dally will give us a word on this point. Incidentally, this action on oils and a number of other substances is opening up a new field of industrial application.

The evidence, as I see it, is sufficient to justify the conclusion that ultra-violet light is neither a "stunt" nor a "cure all," but an agent which, with increased knowledge of its powers and applications, will prove of great value in veterinary medicine.

Discussion.

In opening the discussion, Mr. J. F. Halls Dally, M.A., M.D.Cantab., M.R.C.P.Lond., said: I am deeply sensible of the honour your Society has done me by the kind invitation to open the discussion on Mr. Stainton's valuable paper, the various points in which he has put so clearly before you.

During the past few years in this country, ultra-violet radiation has made great strides. Although it is the youngest member of the ancillary group of medical sciences, on the clinical side it has already proved its worth in an extraordinarily large number of totally different disorders and diseases. In fact, up to the present time, the deductions drawn from clinical experience have far outrun the knowledge derived from experimental research on physico-chemical lines. What is particularly needed is a combination of proved observations on the part of physicists, biochemists and physiologists working in collaboration. We still live too much in water-tight compartments, and for further progress more team work is essential. I have already urged for consideration that, starting with standard electrodes, standard strengths of current, standard positions of subject at standard distances from the arc, and standard lengths of exposure, the effects of small groups of measured wave lengths at different intensities of radiation should be studied.

Most of what has been already published on the therapeutic side deals with human diseases, yet the value of ultra-violet radiation in the treatment of the lower animals is becoming increasingly recognised. From my own standpoint, as a physician chiefly concerned with diseases of the chest, perhaps the most useful way in which I can approach your specialised work on animals is to outline very briefly some of the points which we have in common.

In the first place, much of the experimental work upon which certain of our principles of application are based has been carried out on animals. The recent valuable work of Orr, Henderson and Crichton on "The Influence on Nutrition of Ultra-Violet Rays," to which Mr. Stainton has referred, confirms in regard to farm animals the beneficial and well-known effects which have previously been proved to take place in human subjects with reference to calcium and phosphorus metabolism. These authors took young pigs about nine weeks old, analysing the intake and output of calcium and phosphorus over a period of fifty days. During a part of this time the pigs were irradiated for one hour daily with a carbon arc lamp, considerable increase accruing in the amount of calcium and phosphorus retained in the body, with corresponding diminution in the amount excreted in the fæces. It is noteworthy that these results were obtained in pigs which were on a diet ill-balanced in respect of calcium and phosphorus.

In opening a discussion on this subject last year (1) I referred to a further important experiment bearing on this issue, namely that of Grant and Gates(2), who irradiated normal clipped rabbits daily for 30 minutes at one metre from a mercury lamp during three to seven weeks. Changes in absorption and excretion of calcium and in the calcium level of the blood took place, the blood calcium concentration rising to 12.9 mgm. per kilo. of body weight as compared with 11.9 mgm. in sixty control animals. At autopsy the parathyroid glands manifested a relative increase of no less than 32 per cent. above normal weights, the gland hypertrophy being due to a true parenchymatous hyperplasia. These experiments form an additional link in the chain which unites the parathyroid glands with calcium metabolism.

Numerous observers have demonstrated that the mineral element in milk towards the end of the term of lactation diminishes, and that ultra-violet irradiation has the effect of overcoming this deficiency, and the results published by Hess, Weinstock and Sherman(3) in January last tend to show that such prophylactic irradiation of the nursing mother causes a definite increase in the anti-rachitic properties of human milk. The work of Orr and his collaborators on lactating goats, also mentioned by Mr. Stainton, brings the veterinary and medical aspects into line.

Consideration of the above leads us on to the effect of ultra-violet rays on foodstuffs, and experiments have been made on guinea-pigs and other animals which go to prove that the animal fed on such irradiated substances is thereby enabled to absorb and to deposit calcium and phosphorus in the tissues in similar manner to one which had itself been irradiated. The effects of feeding human tuberculous subjects with the daily addition of 1 oz. of cholesterol irradiated for 40 minutes with a mercury lamp have been observed by myself, the patients thus treated manifesting a higher resisting power against infection and greater well-being than the controls. In this connection I would just mention the striking claims of Professor J. C. Drummond, and of Steenbock and Hess to have activated by irradiation foodstuffs lacking in vitamin A, but that inert chemical substances can thus be transformed into vital principles requires a more profound belief than many of us are disposed to exercise.

The effects of ultra-violet energy on metabolism, in my judgment, are special for special kinds of metabolism, and not general as has been stated. Animals and human beings sensitised by injection of dyes exhibit qualitative changes in protein metabolism, as measured by the urinary nitrogenous metabolism, which is increased.

The most dramatic results occur in the case of calcium and iron metabolism, hence the utility of this method in the therapy of ricketty and anæmic states, and in the convalescence after exhausting maladies. Next come phosphorus and iodine metabolism, which receive benefit, but not to the same extent. A balancing action is to be noted in conditions of dysthyroidism. Processes of oxidation and of internal secretion are both regulated, urinary elimination is augmented, errors of assimilation are rectified, and the nervous system is soothed. An important effect of ultra-violet rays is their anæsthetic and analgesic properties. It is certain that they relieve pain, whether of superficial skin surfaces or of deeper structures, but we do not yet know the mechanisms involved. This analgesic effect is seen in the treatment of the earlier stages of joint affections, synovitis and arthritis, both being relieved by reduction of swelling and absorption of adhesions. The excellent results obtained in tuberculous arthritis are universally recognised. Ultra-violet radiation is also most useful in promoting the disappearance of tuberculous glands, and in relieving inflammatory conditions, the carbon arc being generally the most useful form of application. Pleurisy and bronchitis are ameliorated, as are the more chronic forms of pulmonary tuberculosis, the contra-indications in the latter disease being (1) fever with rapid breaking down of lung tissue, and (2) active toxæmia.

In summarising these necessarily brief and somewhat scrappy remarks, may I say that I hold the "balancing" function of ultra-violet energy to be the most important attribute of its systemic application. This effect is probably due to action on endocrine glands and sympathetic nervous system. Local effects can also be produced by

(1) Halls Dally: Proceedings of the *Royal Society of Medicine, Section of Comparative Medicine*, 1926, xix, No. 10, 45-49.
(2) Grant, J. H. B., and Gates, F. L., *Proc. Soc. Exper. Biol. and Med.*, 1924, xxi, No. 5.
(3) Hess, Weinstock and Sherman: *J. Amer. Med. Assn.*, 1927, lxxxviii, No. 1, 24.

the choice of lamps such as the Krohmeyer mercury lamp or the tungsten arc, which emit rays of short wave length. The mercury vapour lamp is also a "cold" lamp with intermediate action, whilst the cored carbon arc emits useful heat rays and at the same time yields a continuous and even ultra-violet output of rays approximating closely to those of the solar spectrum.

Miss MARGARET HUME, of the Lister Institute, speaking at the invitation of the President, said in the course of her remarks, that her colleague (Miss Henderson Smith) and herself were very much honoured by being invited to attend that meeting of the Society and she, in particular, by being asked to give a short account of the results they had obtained in treating monkeys with ultra-violet light.

It was probably well known to all present that monkeys that had come to this country would not adapt themselves to the climatic conditions by taking a suitable diet, and the consequence was that they usually suffered from rickets, while monkeys practically never bred in this country. They had been, for a long time, concerned with the condition of monkeys in captivity here and they were anxious to try to see if it could be bettered. When they were at the Zoological Gardens one day they noticed a case which they thought was particularly suitable for treatment. She was a Congo Mangaby about three years here and she had nearly lost the use of her legs. As she was the property of Lord Rothschild they were able to get permission from him to take her away and treat her. They had an X-ray photograph (exhibited) taken of her hand and wrist, and it showed great rarefaction of the bone, while the epiphyseal line of demarcation had faded away. They started treatment on her in March of last year, giving her 10 to 20 minutes of the mercury vapour quartz lamp. She gained steadily in activity for a long period. No further X-ray photographs were taken until June (four months later) and then it was apparent that a great deal of healing had taken place. But the bones were still much rarefied and the epiphyseal line had not become distinct. They continued the treatment until November of last year, when she continued to gain steadily. Moreover, she also developed sexually and she began to erupt her second set of teeth. At that time (November) she was almost normal, but most unfortunately, without any previous sign of ill-health, she succumbed to pneumonia, dying in 36 hours. An X-ray photograph, taken *post-mortem*, showed an extraordinary amount of healing. The epiphyseal line was entirely reconstituted and the bones were quite dense.

It was apparently true in those cases that improvement could go on for nine months or more before the animal was entirely restored. That was a very satisfactory case, and the next effort made was in the nature of prophylaxis, to see if they could make the animals breed.

Two marmosets were bought for them by Dr. N. S. Lucas, and they began to irradiate one of them in October, 1926. In March, 1927, they found that the marmoset which was not irradiated began to go down the hill; therefore, they began the treatment on that and it soon picked up. They then were able to buy a female marmoset and they placed her and one of the males together and continued to irradiate the whole lot. In August, twin marmosets were born; one was dead, but the other survived and was surviving still, and was about nine months' old. About two months ago a second pair were born from the same parents, and again one was dead. They did not know why, but it was probably due to some difficulty at birth. In addition, they had another young female which was in very poor condition when they bought her. She had a septic condition of the hand unlikely to have cleaned up under ordinary conditions in this country, but it did so under ultra-violet treatment, and she grew and was now in excellent health.

They felt strongly that for prophylactic work with monkeys the lamp they used (a deteriorated mercury vapour lamp) was good. They gave 10 minutes, and the animals seldom suffered from sore eyes. She saw that there was a good deal of advertisement of a type of filament lamp. They had not used it, but were doubtful of its efficacy. They had satisfied themselves that if one could get effective irradiation of the monkeys it was perfectly possible to keep them in health in this country. (Applause.)

Major F. T. G. HOBDAY said that they would all agree that they were spending a most delightful evening in the discussion of that new subject. (Applause.) Those speakers who had related their experiences had shown them pioneer work in something which was going to be a very important feature of medical and veterinary work. He did not know anything about the subject himself and he did not pretend to know. If a dog came in which was a case for treatment with ultra-violet rays, he passed it over to his colleague, Mr. Stainton. But he had witnessed its good effects and the simplicity of its application. The only drawback was the initial cost of the lamp, which was, he thought, about fifty guineas for the lowest priced lamp. The effects produced, however, were absolutely wonderful in sub-acute cases. That case of the indolent ulcer was indeed remarkable. Several veterinary surgeons had had the case in hand, but with the employment of ultra-violet rays one could literally see it heal. In a week the isthmus between the two ulcers had almost healed up. The case of the Bulldog, too, had, previous to the application of the rays, seemed as though it was going to beat them, but one application healed it and with the second application the cure was complete.

The most interesting part of the result of the application of the ultra-violet ray was that the irritation ceased at once. In some of those nervous disorders, the ease that it gave to the patient was most manifest. He had in mind a couple of cases of purulent otitis in the Spaniel, which had yielded to the treatment wonderfully. Another thing that had struck him was how the dogs liked to be treated; they always seemed to know when it was time for them to be taken for the applications and were waiting in readiness. It seemed to give them a certain comfortable feeling, and the adjustment of the goggles was not at all troublesome.

He was pleased to think that they were able to persuade Miss Hume and Miss Henderson Smith to give them the benefit of their experiences in monkeys and marmosets. It was most rare for the marmoset to live in England. It was when being called in to see a monkey which died from pneumonia (it died within a few hours) that he saw the marmosets. To see them was an absolute revelation; they were in perfect health, and that was due to the application of those rays of which they knew so little at the present time.

Professor G. H. WOOLDRIDGE, when called on by the Chairman, said he did not know why he had been asked to speak, unless it was because he knew nothing whatever about the subject. He was, however, perhaps better able on that account to express his appreciation of what had fallen from the lips of the previous speakers and to realise the beneficial effects that were likely to follow from that work. He had listened with very great interest indeed, and of course his experience was not altogether negligible in having observed the results of the application of ultra-violet rays in some cases. He was very interested in their use on the marmoset, as he, too, had had considerable experience of the difficulty of keeping them alive in this country. The results achieved in regard to their breeding were of great interest. One would like to know, in that respect, how the young that had been born in this country comported themselves in this direction, and also as to whether, in the absence of treatment by the quartz lamp, the same trouble was to be expected in them as that to which the imported relatives succumbed.

With regard to Mr. Stainton's paper, there were one or two things in it of which he would like an explanation. In his opening remarks, Mr. Stainton referred to the fact that humidity and moisture materially interfered with the penetration of ultra-violet rays, but later, when explaining his method of application in the dog with the

long coat, he said that wetting the coat was sometimes an advantage and assisted in the application of the rays. That appeared to him to be something of a contradiction.

Another interesting point which he observed was that in the application of the carbon arc lamp (he thought it was), one of the things to notice was the appearance of what he (Mr. Stainton) called sweating in the lesion. That, he presumed, was the exudation of serum. The beneficial effect of that appeared at once to resemble one of the old lines of treatment of lesions of that description, namely, "cupping," the object of which was to produce the same result. Thinking on the same lines, it occurred to him that the erythema and improvement which were produced again corresponded very closely with the results obtained by the application of superficial stimulants, and thereby the old method of the application of blisters received further justification.

With regard to the therapeutic effect of the rays, their application had the great advantage over, for example, that of a blister, in that in the latter there was always a preliminary stage of very considerable discomfort, whereas the effect from the outset of the application of ultra-violet rays appeared to be increased comfort to the patient and ultimately there was the improvement following the stimulation. With regard to the use of the mercury vapour quartz lamp at the Zoological Gardens, that had been introduced there, as they would know, with very beneficial results indeed. But the observations could not be made with the same precision as they could be in those institutes and institutions where the lamp could be applied with a greater degree of accuracy than at the Zoo.

He felt that there was a great future for this line of work and he offered thanks to those who had preceded him for their very excellent papers and remarks, not only because of their benefit to the meeting, but because, when they received the report of the proceedings in the *Record*, they could sit down and read, mark, learn and inwardly digest it. (Applause.) He would remind them that this was one of the important subjects to be discussed at the Annual Meeting of the National at Torquay.

Major H. KIRK said that he had listened with the greatest interest to all that had been said by previous speakers and that he must compliment Mr. Stainton upon his excellent paper. As they doubtless knew, he had studied and practised ultra-violet therapy during the last nine months. He had had no cause to regret having purchased a lamp. Mr. Stainton had mentioned the supersensitiveness of some patients to ultra-violet rays, but he had not found that dogs were, as a general rule, very sensitive; in fact, he had usually found it very difficult to produce a third degree or even a second degree reaction to the rays when the part to be irradiated had been previously shaved. His impression was, from the photos shown, and from what had been said, that Mr. Stainton had exposed his small patients to light without having removed any hair. Under such conditions he would be surprised if therapeutic results could be obtained, since the short wave length rays had practically no power of penetration, and were certainly absorbed by hair. Even the longer wave length rays only penetrated skin to the depth of about 1/10th m.m., and his own method, therefore, was always to clip and shave the parts to be treated. If systemic irradiation was in view, he shaved the area of the breast and abdomen, leaving the back and other parts intact. Dirt and dandruff also must be carefully removed.

They were taught that the dog had no sweat glands about its body, but it was constantly observed, when he was irradiating those animals, that multiple minute beads of moisture appeared; and, should he be treating a patch of moist eczema, the exudation of serum therefrom was very markedly increased. It was essential continuously to wipe away those excesses of moisture as they absorbed the rays before the latter reached the actual tissues. Pyorrhœa had been mentioned, and in respect of the cases of cure mentioned by the essayist, he would like to ask Mr. Stainton what type of lamp was used, and at what distance? Mr. Gray (whom he regretted was not there) had characterised the treatment of pyorrhœa with ultra-violet rays as sheer bunkum. (Laughter.) Yet, he knew two dental surgeons, practising at Bath, who had installed a Krohmeyer lamp on each of their three floors of their premises, and who averred most definitely that they could and had completely cured that disease by the employment of ultra-violet rays. Clinical records, and the patients, could be produced as proof. In moist eczema of the small animals he had had very variable results. Sometimes the effect had been very gratifying and at other times there had been no benefit at all. It was difficult to explain that phenomenon, but there it was. As concerned purulent otitis, they might remember his having reported, some months ago in the *Record*, the case of a Sheepdog which had been treated for four months in every conceivable way. Ultra-violet rays were then resorted to, and after seven applications, all discharge stopped and healing seemed complete. It was miraculous. But then, unfortunately, there was a recurrence three weeks later which nothing had been able to cure, nine further months having now elapsed. He could only think that the disease had progressed to such deep regions that the lesions were out of reach of either rays or other therapeutic measures.

The stimulating effect upon the growth of healthy hair had been mentioned, and he could confirm those observations. When he had shaved a dog and irradiated him once or twice, it was soon apparent that further shaving was again necessary as the hair would grow nearly a quarter of an inch in a few days. A Harley Street doctor assured him that for alopecia he had known no failures if only the patient would continue the treatment. He said probably not less than 24 exposures would be necessary. He tried it on his own head, but did not grow anything. (Laughter.) But then, he was not consistent, for having exposed his forehead about six times, he found he could not be bothered, and was content to leave it as it was.

Mr. Stainton considered ultra-violet rays of little use in nervous cases. At the course of lectures which he the speaker attended, some children ranging between 5 and 10 years of age were brought to the class, suffering from poliomyelitis. Some of them, he was told, had never been able to stand, and yet in at least two cases about nine months' light treatment had rendered them able to stand unsupported. In rickets, ultra-violet rays seemed to have an especially good effect, as he had personally recently discovered. A Great Dane puppy was brought to him so badly affected with rickets that it was nearly walking upon the posterior metacarpal surfaces of both forelegs. It received five general irradiations of 15 minutes each at a foot distance. In addition, he gave parathyroid gland and calcium lactate, and in three weeks that dog was practically cured. Almost every day one could notice it becoming straighter on its legs. The results were really wonderful. It then went home to its owner, who was delighted. After a few more exposures he was certain he could have effected a complete cure.

Nobody had mentioned the question of "Vitaglass," which many people were now using in kennels and cow-sheds, etc., in place of ordinary glass, in the belief that more of the natural ultra-violet rays would pass it than was possible with common glass. But since the latter would pass rays down to 2,900 A°, there seemed little to be gained when they came to consider that the shortest wave lengths which reached earth from the sun were those of 3,000 Angstrom units. It was, however, a question worthy of discussion.

Professor Wooldridge had mentioned that the favourable effects of ultra-violets ray were in a measure due to the erythema produced, and he drew an analogy between that and the erythema produced by blistering agents. He thought, however, that with ultra-violet rays the erythema was accompanied by a sedative effect, whereas with blisters there was pain. He could assure him that that was not always the case, as he irradiated the perineal region of a man suffering from chronic prostatitis, but, unfortunately, gave him a little too much, and he could not sit down for five days. (Laughter.) But his other pains and troubles vanished.

Mr. J. WILLETT expressed the opinion that all present would have learnt a great deal from the discussion that evening, in which he had been most interested. He could not contribute much towards it, except to relate a certain experience of his own in regard to the mercurial light. He had suffered from neuritis for two months, and was subjected to the mercurial rays for two minutes on the front and back of his shoulders, and found the treatment very comforting at the time. On the following morning, however, the area over which the light had been applied was very hyperæmic and later it started skinning. He was in great pain, as a result, for a week.

THE REPLY.

Mr. F. H. STAINTON, who replied briefly, said he had to thank the meeting very much indeed for the kind reception which his paper had been accorded, and his best thanks were also due to those who had taken part in the discussion. He was particularly indebted to Dr. Halls Dally, who had come there at great inconvenience to open—(applause)—he knew the latter had three other engagements to fulfil that evening. He also desired to thank Miss Hume for her valuable contribution. (Hear, hear.) He really did not appear to have much very to which to reply. Professor Wooldridge had raised a question in regard to humidity and damping the coat. He was afraid he was not quite exact: in his statement he had in mind the treatment of the animal with the long-haired coat and in any case one would push the hair back in order to expose the piece of skin to be subjected to the application of the rays. Obviously one did not expect any rays to go through a mass of damp hair, but one could not, however, shave a Blue Persian cat. (Laughter.)

Answering Major Kirk, the two cases of pyorrhœa he had mentioned were exposed to the quadruple arc lamp (he did not possess a single pole lamp), but the results were there. At the present time they did use the tungsten arc lamp. They gauged the distance by the heat, and it was usually from 18 inches to two feet.

In the treatment of rickets they had got to realise that the conditions in treating children and animals were very different. A child might lie in bed with suitable supports and so on, but a dog had to walk about—you could not keep him off his feet. If one got a ricketty dog of heavy breed, it was astounding that one should get such a result as was claimed by Major Kirk. Their results with dogs of this type were not good.

It only remained for him to thank them once again for their kindness in receiving his paper so well.

Alleged Lead Poisoning of Cattle.

THE "COW PARK" CASE.

The *Jedburgh Gazette* (Jan. 21st, 28th, Feb. 4th, April 1st) reported that in the Sheriff's Court at Jedburgh on January 18th, Sheriff Baillie began the hearing of an action (which has become known locally as the Cow Park Case) in which G. Anderson, farmer on the Stitchel Estate, near Kelso, made a claim for £36 against G. R. Rae, J. S. Rae, farmers, and M. Douglas, general dealer. Pursuer alleged that two bullocks died at Sweethope on June 5th and 7th, 1925, as the result of lead poisoning through licking paint from a disused tin drum, which formed part of a heap of scrap sold by defendants Rae at their displenishing sale on May 20th, 1925, as the outgoing tenants at Sweethope. Douglas purchased the scrap, which was still in the displenishing sale field, Cow Park, when pursuer, the incoming tenant, put his cattle to pasture there on May 29th, 1925.

Pursuer gave evidence that he purchased 26 cattle at Wigton, Cumberland, on May 28th, and on the morning of the 29th they were driven and put to grass in the Cow Park. On the 31st he noticed two bullocks nosing about the scrap heap and the next day the cattle were moved to another field. On the night of June 2nd a bullock was found to be ill; he thought it was suffering from poison and on going to the Cow Park he found two or three old dip tins and a paint tin 1½ft. long and 1ft. across. There was pink paint on the sides of the drum to about ½in. thickness and also on the bottom. The sick bullock died on June 5th and another which had also been ill died on June 7th.

Robert Connochie, M.R.C.V.S., St. Boswells, stated that the cause of illness of the bullocks was lead poisoning. Witness said that on finding the diagnostic sign—blueness of the gums, sometimes in the form of a line, at other times diffused over the gum—there was no doubt in his mind that it was a case of lead poisoning. He saw marks on the paint drum as if the paint had been licked by a bullock.

Thos. D. Connochie, M.R.C.V.S., Galashiels, and Wm. D. Connochie, M.R.C.V.S., Selkirk, supported the evidence for pursuer that the presence of the "blue line," together with the symptoms which were noticed, pointed to the illness as acute lead poisoning. With reference to no *post-mortem* examination having been made, witness held that while a *post-mortem* examination and a chemical analysis would have been confirmatory, it was not necessary in order definitely to ascertain the cause of death. In a case of a cow at Ettrick-shaws, which died after eating a quantity of paint out of a tin from which a painter was painting a bridge, he found about a gallon of liquid paint in the rumen and a blue line was present in the gums. The symptoms of lead poisoning appeared within a few hours after taking the poison. In cross-examination witness was asked whether he was aware that what he had stated was unique in the records of veterinary toxicology; witness replied that in lead poisoning he had invariably found the blue line.

John Taylor, M.R.C.V.S., Edinburgh, said he was not surprised to hear of the presence of the blue line in the two bullocks as a result of licking paint two or three days before. If the animals had been affected for some time before with lead poisoning of any description, they would have shown signs of unthriftiness. In cross-examination witness agreed that in a case of suspected poisoning it was essential and advisable to have a *post-mortem* examination and a chemical analysis of the animal's stomach, but one was often considering the farmer's pocket. Witness said that he would diagnose lead poisoning solely from the presence of the blue line. In his experience cattle did not develop many troubles, except milk fever, in a journey.

J. B Hay, a shepherd, said that in the scrap heap he found a lot of combustibles—nearly everything from a needle to an anchor. He noticed a paint tin with "pinky" paint, one of blue paint and one of a cream shade.

THE DEFENCE.

Alex. B. Tully, M.R.C.V.S., Kelso, said that as regarded lead poisoning it was impossible without a *post-mortem* and a chemical analysis of the stomach contents to state definitely it was lead poisoning. From the presence of a blue line on the gums he would diagnose chronic lead poisoning as opposed to the acute form. On the whole case witness would say the bullocks did not die from lead poisoning and certainly not from lead poisoning got at Sweethope.

W. H. Baird, M.R.C.V.S., Edinburgh, said that after hearing the evdence of Mr. R. Connochie who attended the bullocks, he would certainly not feel justified in certifying the cause of death as lead poisoning, nor in attributing death to a particular tin of paint.

Professor Greig, of the Royal (Dick) Veterinary College, Edinburgh, also gave evidence for the defence.

J. Govan said that his firm supplied quantities of non-poisonous blue and red paint on May 9th, 1925. J. Black said he painted certain implements but the paint contained no lead or anything at all of a poisonous nature.

Robert Scott, M.R.C.V.S., Hawick, detailed the chief symptoms in acute lead poisoning. In his opinion, it was quite impossible definitely to diagnose the poison from which an animal might be suffering without first making a careful *post-mortem* examination and a chemical analysis of the stomach contents. He had heard a great deal in this case about the blue line, but he agreed with the authorities who stated that no blue line was to be found in cases of

acute lead poisoning. He could find no authority who stated that the blue line appeared in acute lead poisoning. He agreed with Lander, the highest English authority, in his statement that the blue line appears only in chronic poisoning. Asked whether pursuer's cattle might have been suffering from chronic lead poisoning on their arrival at Sweethope and yet be looking quite well, witness replied in the affirmative. They had come from a lead smelting district and would be getting small doses of lead from the herbage every day.

G. R. Rae, one of defenders, said that he considered his case had been prejudiced by delay, particularly in respect that he had no opportunity of having a *post-mortem* examination of the bullocks definitely to ascertain the cause of death. A paint tin had been bought with other articles at Hume Hall sale two years before. It had had some kind of red paint in it, but when purchased at Hume Hall it was filled with bolts and plough points and, after being brought to Sweethope in 1923, it lay in a shed until put out on May 20th, 1925. It was the only red paint tin about the place. It was empty, but red could be seen on the sides and quite possibly it had been used for keeling sheep. He heard evidence about there being three paint tins in the scrap, containing pink, blue and cream-coloured paints, but he said there were no such tins on the farm.

SHERIFF'S DECISION.

In his interlocutor the Sheriff-Substitute found that in fact it was not proved that the two cattle died from lead poisoning contracted on the farm at Sweethope. He found that in law defenders were not liable to pursuer in damages for the death of the cattle and that pursuer was liable to defenders in expenses.

In a note the Sheriff says: "At first sight it appeared that Mr. Robert Connochie's deductions would be sufficient to infer that death had occurred from lead poisoning caused by paint in a drum. As the case developed, however, it came out that there were serious difficulties in accepting this conclusion, and in the end, it became clear that this conclusion could not be accepted as the correct one. No *post-mortem* or analysis of the stomach contents was made; so it cannot be held as proved to demonstration that death did actually occur from lead poisoning and not from some other cause. In the absence of scientific examination of the gums, it cannot be held as decisively proved that the blueness thereon was produced by a metallic lead deposit combining with the tartar on the teeth. There is strong presumption that Mr. Robert Connochie's diagnosis was correct, and that the animals were suffering from lead poisoning, but even assuming that as sufficient, it has further to be proved that this lead poisoning was acquired on the farm of Sweethope.

"Now, in the first instance, I think it is proved that the only paint tin we have to deal with is the one Mr. Connochie produced out of the scrap heap. There was a little red paint on the sides, but through lapse of time it had become too hard for cattles' tongues to affect it. I am, therefore, of opinion that it is not proved that this paint tin contained lead paint or that it was licked by the cattle.

"But further, and this is the most important part of the case, even admitting that these cattle, as seems probable, did die from lead poisoning, it is to my mind conclusively proved that this lead poisoning could not have been acquired at Sweethope. Mr. R. Connochie's evidence depends on the blue line or blue diffuseness alone, as the other symptoms are clearly not confined to lead poisoning alone. Now there are two forms of lead poisoning, acute and chronic, and blueness only occurs in chronic cases. Professor Greig, whose evidence might be held as decisive, is clear on this point and his evidence is corroborated by Mr. Baird and the other expert witnesses for the defence. It is clearly proved by them that before the blueness can develop on the gums a lengthy process has to be undergone in the animals' stomachs before it is assimilated into the system, and from thence reaches the mouth. All this process is proved to take a period of weeks, or months, and, consequently, if the blueness on the gums observed is

(Continued at foot of next column.)

The Veterinary Record.

23rd April, 1927.

ACTINO-THERAPY IN VETERINARY PRACTICE.

A substantial gathering of the Fellows of the Central Division was recently treated to an illuminating address by Mr. Harold Stainton, F.R.C.V.S., upon Ultra-violet Irradiation in Veterinary Practice. Although the discussion was limited practically to the few who had had actual experience of this method of treatment, the interest of the meeting was intense and sustained.

As the essayist remarked, "there is nothing new under the sun," for the benefits of helio-therapy were recognised from the earliest era of which any record exists. In 1877 Downes and Blunt contributed a paper which was read before the Royal Society of Medicine, upon the lethal action of ultra-violet rays on bacteria.

Although in the preceding and subsequent years many writers had called attention to the salutary effects of sunlight, no systematic efforts were made to establish actino-therapy upon a sound basis until Professor Finssen published the results, in 1893, of his application of light in the treatment of tuberculous disorders. Since then, continuous researches have been carried on, and very great progress made both in the elaboration of theories and apparatus. The progressive spirits of the medical profession found their numbers constantly augmented, until to-day there are so many enthusiasts that it is the rule rather than the exception to find hospitals, sanatoria and consulting rooms fitted with the latest and most costly types of apparatus.

(Continued from previous column).

to be held as existent, then it is clear that this is a case of chronic lead poisoning, and that the animals had taken the lead at a date long prior to their arrival at Sweethope. Mr. W. Connochie and Mr. Taylor speak of two incidents at Ettrick-shaws and Penicuik many years ago when animals died of lead poisoning and where a blue line was apparent. No prior examination of those animals had been made, so that I am not satisfied it is proved beyond possibility of doubt that there may not have been some assimilation of lead on occasions prior to those when these animals came in contact with the lead which Mr. Connochie and Mr. Taylor speak about. The past history of pursuer's cattle is not known and they may well have come from a lead infested district. Apart from the acute and chronic question, which is to my mind conclusive against pursuer, it is clearly proved that there was no lead in the paint used in painting the farm implements prior to the displenishing sale. I am, therefore, satisfied that pursuer has not proved his case."

Veterinary surgeons have long since recognised that light is of universal necessity to the life and well-being of cell development and sustenance ; that, without it, proper metabolism is impossible.

It is comparatively but recently, however, that the sister professions have realised that rays having the therapeutic properties of natural light can be obtained artificially and in concentrated form, thus to a large extent creating in their users a feeling of indifference to the weather conditions of our gloomy island.

The pioneers of ultra-violet therapy in the veterinary profession are few, but the good results so far recorded, and the interest being manifested in them are a happy augury for its future and rapid development in this branch of science.

There has been a disposition in many quarters to deride the idea of treatment by light, though this is not to be wondered at when one reflects upon the receptions accorded to X-rays, organo-therapy and other innovations, all of which, however, have endured initial scepticism and now occupy a recognised status.

Whilst ultra-violet rays undoubtedly exert a mysterious and powerful influence upon living tissues, both toward the cure and prevention of disease, they are not a panacea, and the critic would be hasty and ill advised to condemn their use because in one case or a series of cases he failed to experience similar salutary results. Notwithstanding the antiquity of treatment by light in one form or another, there is undoubtedly still much to learn as regards technique, sources of energy, dosage, and many other essential matters. Thus, the greater the numbers of its devotees the sooner will be amassed the valuable clinical *data* so vital to the development of actino-therapy on a practical scale.

The pathological processes against which ultra-violet has been successfully applied are surprisingly numerous and diverse and a common experience seems to have been that many of the most obstinate cases of skin or other disease have rapidly cleared up under the influence of ultra-violet when all other known therapeutic measures have failed over a period often of months.

That bugbear of young life—rickets—appears to be particularly amenable to light treatment, and this probably by virtue of its power to increase the generation of vitamin D—the anti-rachitic vitamin—and to increase the calcium content of the blood. One speaker at the meeting showed how, after long and patient experiment with actinic rays, it had been found possible to breed and rear young marmosets in this country, a feat hitherto unknown.

Skin diseases, such as eczema, impetigo and chronic ulcers, were recorded as having shown wonderful improvement, and often complete cure, after only a few exposures to ultra-violet rays.

The employment of therapeutic light rays is not necessarily confined to small animal practice, but may be undertaken among farm animals, and already some enterprising veterinary surgeons are using lamps upon cattle and horses for the alleviation of a variety of conditions.

Everything known about actino-therapy in veterinary practice will be gleaned only from the recorded work of those practitioners who adopt it, for there is little or nothing in existing textbooks which could be regarded as a useful guide. Certainly there is, as Dr. Halls Dally pointed out, a crying need for the standardisation of the methods employed ; that is to say, the length of exposure, the distance of the patient from the lamp, the type of arc generated, etc., etc., should be standardised, and results over a long series of cases should be recorded.

In this way only can that degree of perfection and accuracy which clients desire and which enlightened scientific minds demand, be obtained.

The great importance of actino-therapy has been recognised by the Provisional Committee in making arrangements for papers and discussions at the Annual Congress at Torquay next September. In view of the proposed reading of still another paper on this subject at the end of this month before the Mid-West and South Wales Division at Bath, it is hoped that by September the general interest and knowledge of the subject will have so increased as to give rise to a sustained and profitable exchange of opinion.

"Tuberculous" Milk Challenge.

"At a meeting of the Lancashire branch of the National Farmers' Union, at Preston on Saturday," says the *Yorkshire Post* of April 4th, "a statement was circulated to the delegates, from Mr. J. Newton (Ashton-under-Lyme), a member of the branch who was unable to attend, in reference to a letter which had appeared in a Manchester paper from the Medical Officer of Huddersfield (Dr. Moore), concerning clean milk.

"Mr. Newton maintained in his statement that there was not a single proof that tuberculosis had ever been caused by drinking milk or eating meat, but, he said, there was concrete evidence to show that rickets and dysentery were produced by pasteurised milk.

"'The Medical Officer of Huddersfield,' said Mr. Newton's statement, 'disposes of this by saying that the report of the Royal Commission on tuberculosis, which sat for five years, produced definite evidence to the contrary.'

"He (Mr. Newton) challenged the Medical Officer of Huddersfield to produce any evidence from the report of the Royal Commission that tuberculosis ever was, or ever could, be produced by eating meat or drinking milk. He also challenged the doctor to produce any evidence whatever."

CLINICAL AND CASE REPORTS.

Report on Sewage Poisoning of Cattle, 1920-26.

By A. LEVIE, F.R.C.V.S., D.V.S.M., F.R.S.Edin.,
County Veterinary Officer for Derbyshire.

Leading authorities in my profession in the past and present have been, and still are, sceptical of any injurious effects arising in the system of animals by sewage passing through the alimentary canal, and only a few of the rank and file are in agreement with me that it does cause illness.

On this subject some owners of stock will say to you: "See her; she prefers the sewage-polluted water to the laid-on water"; and one farmer who worked a sewage farm went so far as to tell the Court that so beneficial to cattle was sewage, in his opinion, that when getting up any of his stock for show purposes he invariably put them on the sewage effluent in preference to laid-on water and that these animals were so delighted with the change that they were not content to drink it as it flowed over the ground, but in turn drank it as discharging from the effluent pipe. There are, however, stock owners who suspect the baneful effect of sewage in the drinking water on the health of their cattle.

My attention was first directed to the condition in the spring of 1892 in a herd of Ayrshire dairy cows suffering from abortion at a farm near Thornhill, Dumfriesshire. I advised they should have the laid-on water instead of the brook-polluted water. This was carried out and in two months the general health and condition improved and the cows carried their calves the full period of pregnancy. So much was I impressed with the result that ever since, as opportunity occurred, I have acquired information through the observations of others and my own experience of polluted streams and rivers from villages, small and large towns, on farm live stock.

After so many years practical experience in the diseases of farm live stock, I am satisfied that the drinking of sewage polluted water is prejudicial to the health of these animals. In this I am now supported by the work accomplished by the Agricultural Education Department of the Derbyshire County Council during 1920-26 in the examination of sewage-polluted drinking water and observation of its actions on some thirty dairy herds in the County.

The first centre will here be designated by the letter A. Sewage from a village discharged into a stream passing through A's farm, which stream supplied the drinking water for the herd when at grass. For several years the owner lost a few cattle each year and the losses were attributed to various causes. Suspicion at length was directed to the water supply, the owner's veterinary surgeon having reason to believe it had something to do with so many cattle going wrong. He advised I should be called in to consult with him and on an appointed day we met at the farm. The owner and the veterinary surgeon showed me a herd, young and old, of 60 head; they were an unthrifty lot, generally down in condition, dozy, a few scouring, coat staring. I advised that the cattle be allowed only to drink the water laid on at the farm and that notice be given to the responsible party to stop polluting the stream. The latter was without effect, so an action to compel them to do so was instituted and ended in an injunction, damages and costs. Mr. Justice Horridge, when giving judgment, said: "I cannot help thinking that it appeals to one's common sense that if you put a lot of sewage inside a cow it has a tendency to make her ill. I should not have proceeded to comment upon that if it had not been for the fact that the other indications in the case guide me to the point that these cows unquestionably died and dropped their calves as a result of sewage." Since then the herd have had a normal health record.

The second centre, B, was a herd of twenty-two dairy cows. Their owner reported to me his cattle doing badly, not up to standard in milk production and the annual loss for some years of two to three animals dwindling into what he described as "screws." On going over his farm, I discovered two separate streams, one situated on the east side of the farm and the other on the west side of the farm. I found the sewage from some houses in the village close by discharged into the stream on the east side and that the sewage from other houses in the said village and that from the adjoining farm discharged into the stream on the west side of the farm. In this stream were found, in addition to sewage, decomposing cleansings and pieces of flesh.

The cattle, on examination, were an unthrifty lot and appeared to me to be suffering from malnutrition. Some were worse than others, odd ones scouring, and all appeared drowsy. These streams supplied the water for the cattle when at grass; laid-on water supplied the water when in-doors. I ordered the herd to be put off the out-door water supplies and allowed only the laid-on water supply, and advised that the responsible parties polluting the streams should be told to stop further pollution. In two months the condition and health of the herd improved.

At grass time I had the herd divided into two lots, one lot drinking the water from the stream on the east side, the other lot drinking the water from the stream on the west side of the farm. Both lots went back in three weeks to the condition I found them in on my first examination. I now advised that the streams be fenced off and that the water required for drinking by the herd should be carried from that laid on at the farm, or better still that it be laid on in the fields. The stream at the east side was fenced off and the water laid on in the field, with the result that by the middle of July the cattle had again improved to a normal state of health. The stream on the west side of the farm was not at that time fenced off and the cattle continued to do badly. Towards the end of July the cattle grazing on the east side broke through the fence and got at the water in the stream. When I saw them three days after and before the fence was again made good, most of them were scouring and looking off colour. The fence was then repaired and by the end of a week they had improved.

In due course this case came into the Law Courts, but was settled by arrangement between both parties. The stream on the west side of the farm was fenced off and the cattle grazing on the adjacent fields continued in a normal state of health. All the herd whether grazing on the east or west side did well for a year after the case was settled and fencing completed. This summer, however, the fence on the east side of the farm gave way and the cattle grazing there became as bad as ever.

So far, the effect of cattle drinking sewage-polluted water at other centres has borne similar testimony. Space does not permit me to report on them here. Anyone who has a herd suffering from sewage poisoning, however, may satisfy himself on the evidence as stated by me, by following out what I had done when supervising Centre B.

Cystic Calculus in the Dog.

By J. Bedlington Griffiths, M.R.C.V.S., Bolton.

Subject.—A Cocker Spaniel dog, eighteen months old.

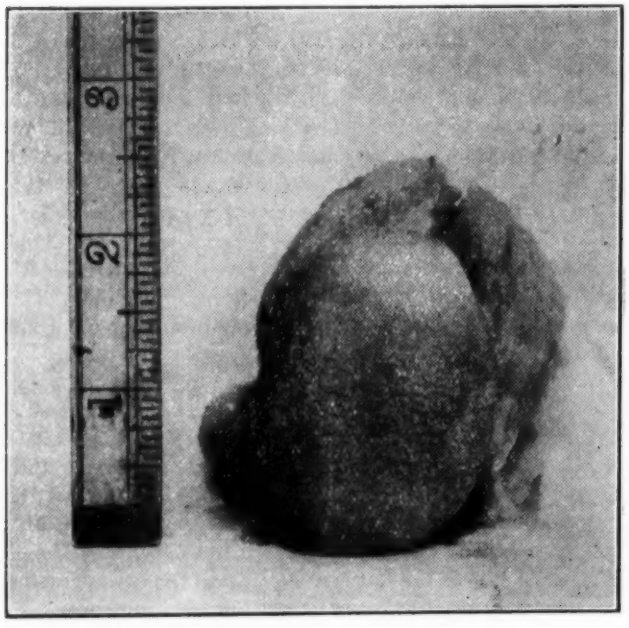
History.—At six months old, periodic straining, which became progressively worse, was evidenced on micturating. For the last few months, blood-tinged urine was frequently passed in small quantities and latterly an offensive purulo-sanguineous fluid. The appetite was well maintained but the dog did not thrive and, when brought to me, was in a debilitated condition.

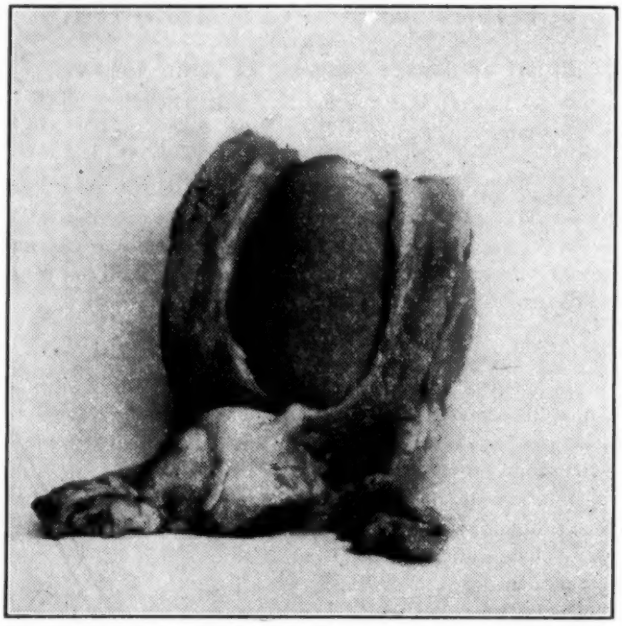
Palpation of the abdomen revealed a hard elliptical mass in the region of the bladder, manipulation of which caused the animal pain. The pulse and respirations were normal, but the temperature was elevated a degree. The visible mucous membranes were slightly injected.

Diagnosis.—I informed the owner that I was of the opinion that there was either a dense fibrous growth in the bladder or an extraordinarily large calculus.

As the owner did not wish for an operation, the dog was destroyed.

Post-mortem Examination.—The prostate gland and bladder were both enlarged and the latter felt practically solid. On incising the wall, which was over half-an-inch thick and indurated, a large calculus was revealed which filled the entire lumen of the organ. The stone was about the size of a pullet's egg and weighed exactly two ounces.





The kidneys were considerably enlarged, the capsule was easily stripped off, and when the kidneys were cut they showed evidence of chronic parenchymatous nephritis. Both kidneys were equally affected. The lining membranes of the entire urinary apparatus were acutely inflamed. All the other organs of the body appeared to be healthy and normal.

Adeno-Carcinoma in the Dog.

By Geo. F. Boddie, B.Sc., M.R.C.V.S., Auchterarder.

The subject of this notice was a large, well-nourished Newfoundland, aged five years.

It was first brought to me on the 17th August, 1926, with a history of apparent lack of vigour and spirits, with breathlessness upon exertion.

Examination revealed a condition of pronounced anæmia accompanied by a thready, fast and irregular pulse. The breath was somewhat fœtid, but not unduly offensive. Physical examination of the chest and abdomen failed to reveal any abnormality, and the general appearance of the animal was excellent. A possible intestinal helminthiasis was negatived after careful microscopic examinations of the fæces. I had thus reached the diagnosis of "Anæmia"—as unsatisfactory as it was incomplete, for while it furnished a clear interpretation of the symptoms which were presented, its origin was quite obscure.

I adopted symptomatic and expectant treatment in prescribing a course of arsenic with generous feeding, rest and the avoidance of exertion. This treatment was followed for nine weeks with little apparent benefit. Periodic examinations were made, particularly with the object of determining symptoms of tumour formation, but without effect.

The absence of clinical symptoms to account for the persistent anæmia was confirmed by Professor Russell Greig of the Royal (Dick) Veterinary College, whom I now

invited to see the case in consultation. Blood films were made by him and he reported leucocytes and erythrocytes normal in number; no increase in poly-morpho-nuclear corpuscles; no eosinophilia; no poikilocytosis; no erythroblasts.

This finding eliminated anæmia of the pernicious type, and tended to negative the possibility of septic process and worm infestation. Tumour formation now ranked in greater probability as the cause, but there was yet no demonstrable proof. On Professor Greig's suggestion I now combined syrupus ferri phosphatis co. with the arsenic. The patient appeared to derive some temporary improvement, which was, however, not maintained, and he continued much in the same condition until the 22nd of January, 1927 (22 weeks after commencement of treatment). On that date symptoms of cardiac complications developed from which death occurred three days later.

A *post-mortem* was made on the 27th January. The immediate cause of death was heart failure due to organised clots involving the valves of both sides of the heart, both sets of valves showing evidence of chronic irritation.

Macroscopically, the cause of the anæmia could not be found. Enormous deposits of fat were noted, also five small nodules in the spleen. The kidneys were very pale in colour. I accordingly forwarded to Professor Greig the spleen, a portion of the liver, a kidney, a piece of bowel and a femur.

He very kindly had a microscopic examination of those organs made in the Pathological Department of the College, and the report was that microscopic examination revealed the presence of adeno-carcinoma in the spleen and kidneys.

The cause of the anæmia was then explained (and it was possible to trace the other symptoms to the anæmia). The breathlessness was due to an insufficient supply of red blood corpuscles to convey oxygen from the lungs. The excess of fat was due to a deficient oxidisation of the tissues.

One feels justified in recording this case, first on account of its puzzling nature, and the long duration of the anæmia without the development of macroscopic lesions; secondly, on account of the interesting pathological picture it is possible to compose with the result of the microscopic part of the *post-mortem*; and, thirdly, because on the 7th January, 1926, I had destroyed this dog's companion, a Scotch Terrier, which had on its flank a large adeno-carcinoma, which had broken down and was discharging.

It is not without interest to note that the Newfoundland should die almost a year later, but without any well-marked primary lesion.

EDINBURGH DEGREE OF B.Sc. (VETERINARY SCIENCE).

The following members of the Royal College of Veterinary Surgeons recently received the Degree of B.Sc. (Veterinary Science) conferred by the University of Edinburgh.

John Salmond Adamson.
William Barr Cleland Danks.
David Richardson Wilson.

National Veterinary Medical Association.

QUARTERLY MEETING OF COUNCIL.

The third quarterly meeting of the Council of the National Veterinary Medical Association of Great Britain and Ireland for the year 1926-7 was held in the handsomely re-appointed Council Chamber of the Royal College of Veterinary Surgeons, at 10 Red Lion Square, London, on the evening of Wednesday, April 6th, 1927.

The President (Professor G. H. Wooldridge) occupied the chair, and was supported by the following members:—Mr. J. J. Aveston, Mr. J. H. Carter, Major R. Catmur, Mr. J. C. Coleman, Mr. H. J. Dawes (Hon. Secretary), Major G. W. Dunkin, Mr. A. Gofton, Mr. H. P. Hogben, Mr. Richard Hughes, Major H. Kirk, Mr. G. P. Male, Mr. C. Masson, Mr. J. W. McIntosh, Major-General Sir John Moore, Mr. R. Barons Nelder, Mr. J. O. Powley, Mr. W. D. Rees, Mr. J. R. Rider, Mr. E. Alfred West (Hon. Treasurer), Dr. A. W. Whitehouse, Lt.-Col. T. D. Young and Mr. F. Knight (Secretary).

The minutes of the previous quarterly meeting, having been published in the *Record*, were taken as read and were confirmed and signed.

CORRESPONDENCE.

(1) The Secretary announced the receipt of apologies for unavoidable absence from the following gentlemen:—Mr. H. R. Allen, Dr. O. Charnock Bradley, Mr. T. J. Bosworth, Mr. J. Clarkson, Mr. W. H. Brooke, Major F. Hobday, Mr. H. V. Hughes, Major T. M. Inglis, Mr. J. Ewing Johnston, Mr. J. S. Lloyd, Mr. G. H. Locke, Capt. N. H. MacAlister, Captain J. F. Macdonald, Mr. J. McKinna, Mr. J. G. Mills, Major H. Peele, Mr. H. L. Roberts, Capt. H. C. Rockett and Mr. W. W. Peggie.

(2) From the Secretary of the Royal Sanitary Institute, as follows:—

The Royal Sanitary Institute,
90 Buckingham Palace Road, London, S.W.1,
4th February, 1927.

F. Knight, Esq., General Secretary,
National Veterinary Medical Association of
Great Britain and Ireland,
10 Gray's Inn Square, W.C.1.

Dear Sir,—Your letter of January 11th forwarding a resolution passed at a meeting of your Association, held on January 5th, suggesting a change of title for the Conference of Veterinary Inspectors, has been considered by my Committee.

They decided to adopt the suggestion that the subject should be arranged under a Section of the Congress rather than a Conference of Officers, but that "Veterinary Hygiene" would be more appropriate as the title for the Section than would "Veterinary Preventive Medicine," which might appear to limit the range of the discussion, and would also clash with the Section of Sanitary Science and Preventive Medicine. It will therefore stand as Section G, Veterinary Hygiene.—Yours faithfully, E. WHITE WALLIS, Secretary.

The Secretary was directed to convey to the Secretary of the Royal Sanitary Institute the appreciation of the Council of the Association at the action which had been taken in consequence of the representations made.

(3) From Mr. T. M. Inglis, of Forfar, accepting office as a member of the Parliamentary Committee of the Association.

(4) From the Secretary of the British Columbia Veterinary Association, saying that at a council meeting of that Association, held in Vancouver, it was unanimously resolved to affiliate with the N.V.M.A. The affiliation fee of £1 1s. 0d. and a copy of the rules and by-laws of the British Columbia Veterinary Association were enclosed.

(5) A similar communication was read from the Secretary of the Uganda Veterinary Association. Both were greeted with applause and the PRESIDENT said that the Council would remember that the Secretary was instructed to write to the Colonial Associations inviting them to

affiliate. These communications were the result of that action and the Council would agree that it was a highly satisfactory one. They welcomed these two Associations most warmly, and were confident that the relationship thus established would be of mutual and lasting benefit. (Hear, hear.)

(6) From the Medical Secretary of the British Medical Association concerning the Dogs' Protection Bill. After consideration in private, it was decided that the President and Secretary should draft a reply.

(7) From Professor J. McCunn, of the Royal Veterinary College, suggesting that notices of motion and other important matters which are to be brought before the Council of the N.V.M.A. for their consideration should be published in the *Veterinary Record*.

The PRESIDENT: Do you wish any action to be taken in connection with this suggestion? It seems to me unnecessary, because any such notices of motion must be received by all members of Council, each of whom is the representative of his Division, and consequently there is a means of its diffusion thereby.

Mr. GOFTON: I do not think any advantage is to be gained, because many of the motions come up from the Divisions and appear in the reports of their proceedings.

Mr. MCINTOSH: I propose that the President and the Secretary be asked to explain to Professor McCunn the facts just stated.

Mr. WEST seconded, and the proposition was carried.

(8) From the Librarian of the R.C.V.S. conveying the thanks of the Council of the College for the gift of the *Veterinary Record* for the quarter ended 31st December, 1926.

THE R.V.C. REBUILDING FUND.

(9) From the Secretary of the Royal Veterinary College, Camden Town, as follows:—

Royal Veterinary College,
Camden Town, N.W.1,
25*th March*, 1927.

Dear Sir,—At a meeting of the General Purposes Committee of the Governors held on the 16th instant, it was suggested that it would be of great assistance to the Governors in their efforts to raise the necessary funds for rebuilding and equipping the College if the help of the National Veterinary Medical Association could be obtained. I am instructed by the Governors to ask you to bring this to the notice of the Council of your Association, and to express the hope that they will consent to give such co-operation.—Yours faithfully, T. C. WIGHT, Secretary.

The Secretary,
National Veterinary Medical Association of Great Britain and Ireland,
10 Gray's Inn Square, W.C.1.

Mr. GOFTON: I suggest that that be referred to the Editorial Committee for action.

The PRESIDENT, remarking at the outset that he thought further steps than that were desirable, proceeded to outline to the Council the measures thus far taken in connection with the fund.

Sir JOHN MOORE: When it was suggested that the "National" should be invited to co-operate, the idea going through the minds of the sub-committee was that the machinery of the "National" might be used for the purpose of collecting money. But since then it was decided that the four members who were co-opted on the General Purposes Committee of the Board of Governors should approach members of the profession as an appeal sub-committee, *i.e.*, directly, and not through the Divisions of the "National." To carry that out a letter was drafted, by Major Hobday, who is Chairman of the sub-committee, and by Mr. West, who is also on it. I have the letter here with me. My duty in connection with that letter was to write it out (laughter), and I have prepared the letter for the signatures of the sub-committee. The President of the "National," however, suggested to me that perhaps it ought to come before the Council of the N.V.M.A., and that perhaps the "National" would be pleased actively to associate itself with the appeal. Again, talking it over with the President of the Royal College of Veterinary Surgeons, he thought it was rather strange that the Royal College had not been approached with regard to this appeal, and it is thought that it would be a very good idea to bring in the R.C.V.S., in the person of its President, to support this appeal.

We want it to be thoroughly understood that it is not for the purpose of building a local college. My conception of a college in London is this—that London is the Capital of our Empire; it is the greatest city in the world; it is the pioneer of veterinary education in this country and therefore it is the duty of everybody, irrespective of whether or not he is a graduate of the London College, to support the rebuilding of this College in order that it may be made a pattern to all veterinary institutions. I think I am right in saying that we could not conduct, other than with a sense of shame, any notable person from the Continent over the London Veterinary College as it stands at present.

It is as part of the programme that this letter is to be issued. It is for the "National" Council to suggest as to whether the four men should be added to. I have also been charged with the duty of writing an Editorial explaining the situation, and that Editorial will appear very soon. It will also be supported by a statement of the subscriptions that have been received up to date. £85,000 is the sum required altogether, and of that sum, £35,000 is guaranteed by the Development Commissioners, provided a similar amount is raised from other sources. Of that sum there have been roughly £10,000 collected to date. We should be delighted if anyone would say whether there would be any advantage in adding to these four names and, if so, if they would suggest who they should be. Two of the existing members of the sub-committee—Mr. West and Major Hobday—are graduates of the London College, Mr. McIntosh is a graduate of the "Dick" College and I myself am a graduate of the New Veterinary College, Edinburgh. There remain the Glasgow, the Liverpool and the Dublin Colleges, and I think it would be better to bring them all in, if possible. I was going to suggest that if it is a question of adding the name of a Glasgow graduate, there is Professor Macqueen, who is on the teaching staff of the London College, and I have also talked it over with Professor Gaiger, who is a graduate of Liverpool, if he might be agreeable to come on that sub-committee. Who we could get for the Dublin College, I do not know, but the letter we are sending specifically refers to Great Britain.

Mr. WEST: I should like to make it quite clear as to how these four names were co-opted because, Mr. President, I fear that there may be some little misunderstanding. I received a letter asking me to attend a meeting of the General Purposes Committee. In common with the other recipients of the letter, I accepted, and the first proposal we made was that the "National" should be asked to assist in this matter. I should be very sorry if any of you should gain the false impression that we overlooked the "National" in this connection, because we were, in fact, very insistent that they should be written to. For my part, I welcome all the names mentioned this evening, though of course they must be submitted to the General Purposes Committee for their confirmation. I am sure they will welcome them too, as their whole object is to get the money.

Lt.-Col. YOUNG: May I say that if you want to approach the North of Ireland—it is rather an important place—you might get Mr. Ewing Johnston to take up work in connection with this committee.

Sir JOHN MOORE: The "National" Council has only got to suggest to the General Purposes Committee that it thinks it would be an advantage in collecting money if the four names were added to. It does not mean really that they would be expected to attend the meetings, those responsible in London could do that, but it would give greater weight to the activities of the Committee if it were highly representative of the profession. For instance, the President of the "National" might add hi :

name as a signatory and also the President of the R.C.V.S. I do not know what Mr. McIntosh has to say, but he is a member of the sub-committee of the Building Fund Appeal Committee of the Royal Veterinary College.

Mr. J. W. McINTOSH: I have not very much to say in connection with this matter. I think that what we have to decide to-night first of all is as to how far this Association, as an Association, is prepared to support the appeal which is now being made for the Building Fund. I, like the other members on this Committee, was asked to attend, and I was pleased to do so and to give my support as an individual member of the profession and not in my capacity as a member of this Council. We thought it might be desirable for this Association to give its blessing, as it were, and support, either to those men who are now on that committee as individuals, or by electing one or two members to be co-opted. Speaking personally, I certainly think that the "National" should give its support to an appeal of this kind. The Royal Veterinary College at Camden Town is really a national institution, and for that reason I think the Council of the "National" should give it support.

Mr. MALE: I propose, Mr. President, that you and the Hon. Secretary should represent the Council of the "National" as members of the Royal Veterinary College Building Fund Appeal Committee and as signatories of the appeal.

Mr. GOFTON: I propose that instead of suggesting certain names as members of the Committee, a letter should be written, in reply to that, that the Council of the "National" is prepared to nominate representatives to the committee if that course is acceptable to the committee. If that letter is replied to in the affirmative, then the gentlemen (whom we may nominate now if we like) may be asked to act.

Mr. CARTER seconded Mr. Gofton's amendment.

Mr. MALE: I have previously, and with intent, asked whether it would be acceptable to the committee if we made nominations now of members who might be co-opted and I was assured by Sir John Moore, Mr. West and Mr. McIntosh that such a course would be welcomed by the committee.

Major KIRK: Might I ask if it is necessary to confine the nominations to two members of Council? Would it not be better, in the interests of the Fund, if we had the names of several members of the Council (say up to five) in different parts of the country?

The PRESIDENT: You have already got four who are members of your Council. You can have too large a Committee for this purpose.

Mr. WEST: I think it was in the minds of the members of the Committee that the "National" should do something on their own account and appoint their own committee.

The PRESIDENT: I think it would be a good suggestion that the "National" should appoint a committee to co-operate with the General Purposes Committee and the latter could co-opt them if they chose to do so.

Mr. COLEMAN: I think the majority of the members of the profession are most anxious to assist in this undertaking. When I received the letter from Sir John M'Fadyean I replied immediately making a donation and suggesting that members of the profession should be given collecting cards. I have heard no more about it, although I have had promises from my clients amounting to four or five hundred pounds.

The PRESIDENT: The cards are in course of preparation.

Mr. AVESTON: If you could get the general practitioner really interested in this matter you could raise the whole sum before you knew where you were. The general public and the farming community are ready enough to subscribe, and the general practitioner who is in touch with them could produce all the money required very quickly.

Major DUNKIN seconded Mr. Male's proposition.

The PRESIDENT now put Mr. Gofton's amendment to the meeting and it was carried. He then called for nominations of representatives in the event of a favourable reply being received from the Building Fund Appeal Committee. The names of the President, the Hon. Secretary, Mr. Aveston and Mr. Ewing Johnston were forthcoming.

Sir JOHN MOORE: There is another aspect of this matter which I should like to put before you and that is that it would be advantageous to work also by Schools, and so on.

Mr. WEST suggested that Sir John Moore should get in touch with Sir John M'Fadyean and ask his opinion as to how many it was desirable should be co-opted.

Mr. McINTOSH: I do not think it is necessary to go beyond what has been arranged. It does not seem to me to matter very much of which college one is a graduate. It is a matter in which the whole profession should interest themselves. (Hear, hear.) Surely the names suggested are quite sufficient, and my own view is that matters as now arranged ought to satisfy all the members of the profession.

The Council thereupon agreed that the President and the Hon. Secretary should be the nominees to serve on the committee if the approval of the committee for the co-option of N.V.M.A. representatives was forthcoming.

The PRESIDENT: In reply to this letter, I think that there should be a further statement that the "National" is desirous of helping as much as possible in the promotion of the appeal and that for that purpose it desires to grant the employment of its organisation, including the utilisation of the official organ of the Association, the *Veterinary Record*.

Mr. Male had risen to second the President's proposal, but Dr. WHITEHOUSE asked to be allowed to do so, adding: We of the Glasgow College have to appeal for money and we want to support any effort that is being made to get money for a veterinary college. (Hear, hear.)

The meeting having expressed assent, the PRESIDENT said: In view of that, the proposition put forward by Sir John Moore (that subscription lists be distributed in the copies of the *Record* containing the Editorial on the Rebuilding Fund) is hereby both welcomed and carried.

(10) From the Secretaries of the following Divisions replying to the Association's enquiry as to the control of cows reacting to the tuberculin test:—North of England, North Wales, Central, South-Eastern, Western Counties, Ayrshire, Scottish Metropolitan and Veterinary Research Club.

The PRESIDENT: I may say that of all the replies that have come to hand there is only one Division that is in favour of some form of control being exercised, all the others are of opinion that the time is not yet opportune for exercising such control.

It was agreed that further consideration of this matter be deferred until all the replies had been received.

The PRESIDENT, replying to a query by Sir John Moore and others, said that the Veterinary Research Club was the name of a Society which was affiliated to the Association in the ordinary way. It was really a Veterinary Research Workers' Association. He had attended some of the meetings and the matters discussed were generally such as had for some time been the subject of research, but which was not yet completed, and therefore could not be published. That was the reason why accounts of their proceedings had not been received for publication in the *Record*.

Major DUNKIN, speaking at the request of the President, said: This is a club restricted as to membership, although we desired to be associated with the "National," and for that purpose we secured our affiliation in the ordinary way, we pay our fee, and we conform to the rules. We have meetings in various parts of the kingdom at which we discuss the work we are undertaking. That is, as a rule, unpublished work. The club was started about four years ago on the initiative of one of the existing members. The total membership is about 25.

The PRESIDENT: This Division has also contributed a link to the Presidential Chain, but it has not yet been inserted.

RESIGNATIONS. The resignations of Mr. J. A. Cunningham, of Guildford (who is retiring from practice on account of ill-health), and of Mr. J. D. Pottie, of Greenock, were submitted and were accepted with regret.

ELECTION OF NEW MEMBERS.

The SECRETARY read the following list of gentlemen who applied for membership of the Association, and who had returned completed nomination forms and paid their subscriptions:—Messrs. R. Barker (Ealescliffe); H. Begg, Jun. (Strathaven); H. A. G. K. Brittain (Guisborough); D. Cameron (Woking); A. W. Carter (Henley-on-Thames); E. Clark (Glasgow); T. A. Connolly (Dundalk); J. P. Cook (Market Weighton); F. J. Eardley (Hersham); W. G. Emerson (Nairobi); P. Fisher (Lochgelly); A. C. Fraser (Birkenhead); J. L. Frood (Ministry of Agriculture); A. M. Graham (London); J. C. Grant (Aberdeen); E. B. D. Hall (Kettering); C. T. Holmes (Wrexham); W. F. Howes (Norwich); W. F. F. Huey (Omagh); J. K. Irvine (South Molton); H. R. Langley (Thurles); W. F. Loveless (Bressingham); J. J. McDowall (Sunderland); C. Macpherson (London); W. D. Macrae (Portree); S. W. Marriott (R.A.V.C.); D. W. Mills (Eccles); J. Norbury (Knutsford); G. D. Norman (Nailsea); H. J. R. Pope (London); E. Porter-Smith (Lincoln); G. Rennie (London); J. N. Ritchie (Edinburgh); G. B. Simmins (Glasgow); J. Smith (London); R. B. Smith (St. Ives); W. P. Stokes (Woodford Green); J. C. Taylor (London); H. M. Wilson (Cupar); C. R. Wood (Altrincham); T. W. Woodhead (London).

The PRESIDENT: That makes a list of 41 applicants for membership and I am sure that such a number is to be regarded as most gratifying and is a splendid testimony to the vitality of the Association. (Applause.)

The elections were then made *en bloc*.

The late Mr. George Howie, Sen. The PRESIDENT: Gentlemen, I have one sad announcement to make, and it is of the loss of one of our Vice-Presidents since our last meeting. That is of Mr. George Howie, sen., of Alford, Aberdeen. I am sure you would wish to signify our sympathy with his family and our sense of loss, in the usual way.

The vote of condolence was passed in silence, the members standing.

The PRESIDENT: On hearing of Mr. Howie's death, I sent the following letter to Mrs. Howie:—

Mrs. Howie, 28*th February*, 1927.
Alford, Aberdeen.

Dear Mrs. Howie,—I have only just heard of the death of your beloved husband, which came as a great shock to me for, when I saw him at the Annual Congress in Dublin in July last, he appeared to be in good health, and I was not aware that he had been indisposed.

The loss to the Association, the interests of which Mr. Howie had so much at heart, is one which will be deeply felt by all our members and in particular by those who had the privilege of serving with him on the Council of the Association and of enjoying his company at the Annual Meetings at which he was so regular an attender.

I desire to take this, the earliest, opportunity of tendering to you, on behalf of the Association, our heartfelt condolences with you in your great trouble.—Yours sincerely, GEORGE H. WOOLDRIDGE, President.

REPORTS OF COMMITTEES.

APPOINTMENTS COMMITTEE: Mr. GOFTON, the Chairman of this Committee, read the following report and moved its reception and adoption:—

A meeting of the Appointments Committee was held in this room this evening, with Mr. A. Gofton in the Chair.

A letter was read from Mr. G. B. Purvis, F.R.C.V.S., asking that a method might be devised whereby members resident abroad might receive early notice of appointments vacant in the Colonies.

The Secretary was instructed to write to the Colonial Office and to the India Office requesting that longer notice might be given of such appointments; also to the Secretary of the R.C.V.S., suggesting that this matter might be taken into consideration in connection with any action which the Council of the Royal College might take in regard to the conditions of service of Colonial appointments.

The Committee considered a petition, explained by the Chairman, submitted from Senior Veterinary Officers resident in the Federated Malay States, asking for support in securing (1) an improvement in the general status and the rate of pay and promotion in the ordinary Veterinary Services and (2) a salary attaching to a super appointment more in keeping with the responsibility which the officer is expected to carry and to secure direct access to the powers that be.

It was agreed to make a strong representation to the Colonial Office supporting the petition of the Officers of the Federated Malay States. It was also agreed that the Association should discourage by every means in its power applications being made for service there until the status has been raised and pay has been put on a proper scale. It was decided to act in consultation with the Royal College in drafting that petition, and the President, the Chairman and Sir John Moore were appointed a small Committee in this regard. It was further decided to write to the Principals of the various Colleges giving particulars of the situation with a view to preventing applications being made by newly qualified men.

The motion for the reception and adoption of the report was carried without discussion.

ORGANISING COMMITTEE: In the absence of Dr. Bradley (Chairman) the following report was read by the SECRETARY:—

A meeting of the Organising Committee was held at the offices of the Association on Monday, March 7th, 1927, when in the absence of the Chairman, the President presided.

Consideration was given to the further information supplied by The British Hay Traders' Association regarding the proposed Conference on the subject of "Horse v. Motor Transport," in which the N.V.M.A. had been invited to participate. It was agreed, however, to take no further action in the matter.

It was reported that the *Hampshire Chronicle* had given publication to a reply from the Association to a letter which had appeared in that paper in which a correspondent had stated, *inter alia*, that "Sanitary Inspectors are more competent than Veterinary Surgeons to inspect meat." Communications had also passed between the correspondent in question and the office, and it was felt that the steps taken had corrected the false impression created by this correspondent.

The President explained the satisfactory arrangements made to further the interests of the profession and to keep a watchful eye on the lay press.

The report of the Committee was then received and adopted.

VETERINARY INSPECTORS AND PUBLIC HEALTH COMMITTEE. The report of this Committee was read and its reception moved and adopted, by Mr. MALE, the Chairman. It was as follows:—

Two meetings of this Committee have been held, one immediately preceding this meeting of Council, under the Chairmanship of Mr. G. P. Male.

The chief business before the meeting was the consideration of the appointments made under the Milk and Dairies (Scotland) Act, 1914. A letter was read from Captain Donald Campbell replying to the Committee's requests to be informed as to various points in connection with this matter. The Chairman outlined the various stages by which the present position was reached in which the main point at issue was the requirement that part-time Inspectors should undertake not to practise within the area of the district to which they were appointed.

Replies were read from the Secretaries of various Divisions in Scotland to a letter sent by the N.V.M.A., seeking to ascertain what were the views and wishes of Scottish practitioners in this matter. These disclosed some divergence of opinion. It was pointed out that under the Act the Scottish Board of Health had no right to disapprove of any appointment, only the terms of service. Mr. Gofton proposed and it was agreed to take the opinion of the Solicitor on the interpretation to be placed upon

sub-section 4 of Section 3 of the Act, also what steps should be taken as a result of his finding.

The Council approved the report.

THE FINANCING OF BRANCH MEETINGS.

FINANCE COMMITTEE. Mr. McINTOSH (Chairman) read and moved the reception of the following report :—

Two meetings of the Finance Committee have been held since the date of the last Quarterly Meeting of Council.

The Committee have decided to refer to the Council for a ruling, the *question as to the advisability of financing Branch meetings.*

The donation to the Federation of Medical and Allied Services has been discontinued.

The Committee are glad to be able to report that the negotiations in regard to the claim made against the Association for the assessment of its profits made by the sale of *The Veterinary Record*, have ended satisfactorily, the Inland Revenue having decided to let the matter drop.

The Balance Sheet for the year ended 31st December, 1926, and the Auditor's Report have been considered and approved for presentation to the Annual General Meeting.

The Treasurer has been authorised to purchase, on behalf of the Association, £1,000 of 5 per cent. War Loan, 1929-47 and the sum of £500 has been transferred from the General Account to the Deposit Account.

Mr. WEST (Hon. Treasurer) in seconding, presented the following financial statement :—

Mr. Chairman and Gentlemen,

I beg to give you a review of the present financial position.

	£	s.	d.
On March 1st, having discharged all liabilities to the end of January, we had a balance at the bank and in hand of	847	12	3
Since that date we have received subscriptions	138	12	0
For cash and credit sales	66	16	6
For cash and credit advertisements	141	1	4
SUNDRIES :—			
Dividend on Southern Railway Stock ...	11	6	0
Reporting S. Eastern Division	2	10	0
Affiliation Fee, British Columbia	1	1	0
To meet charge on Scotch cheque	0	0	6
Transferred from Deposit Account	1000	0	0
Deposit interest	3	9	0
Making a total of	£2212	8	7

As authorised by the Finance Committee the following amounts have been expended in discharge of liabilities :—

	£	s.	d.
Hudson and Son. February Accounts ...	221	12	9
Fowler, Langley and Wright	69	13	9
A. D. Wykes. Professional fees re Income Tax	21	0	0
Purchase of War Loan	1019	10	6
Transferred to Petty Cash Account	50	0	0
Transferred to deposit account	250	0	0
Salaries	64	11	8
Roneo, Ltd.	3	7	1
Wm. Dawson and Sons, Ltd.	2	0	0
Cheque Book	0	10	0
	£1702	5	9
Leaving a balance at bank and in hand of	£510	2	10

The following liabilities are due for payment and your authority to do so is requested :—

	£	s.	d.
Hudson and Son. March accounts	230	9	1
Gray's Inn, rent of chambers, Ladyday ...	17	0	0
Audit charges. Fairbairn, Wingfield and Wykes	21	0	0
	£268	9	1
This will leave an available balance of ...	£241	13	9

as well as a sum of £500 on deposit.

General Remarks.—When considering this report members must bear in mind that this being the period of the year when nearly all the subscriptions are being paid, the financial position looks at its best, but it must not be overlooked that from now until the end of the year we have to face a much leaner time. We have also for the first time in the history of the Association to make provision for expenditure in connection with such propaganda and publicity work as has been decided upon by your Organising Committee and confirmed by the Council.

With these brief remarks I present the report and produce for your inspection the Pass Books.

I am, Gentlemen,
Yours faithfully,
E. ALFRED WEST,
Honorary Treasurer.

The PRESIDENT : The report and statement are now open for discussion.

Mr. McINTOSH : I should just like to say, in connection with Clause 2, that the Committee decided to ask the Council for a ruling upon the question as to the advisability of financing Branch meetings. This matter has come prominently before your Finance Committee in connection with certain Branch meetings and it was thought that we ought to have guidance in regard to refunding any monies expended in connection with these meetings. The Finance Committee desired to be guided by some considered opinion from the Council in this matter.

The PRESIDENT : I may say that one item which had to be brought before the Finance Committee was the suggestion of one of the Branches that they should be enabled to organise meetings and to have papers printed and circulated in advance, also to make provision for the travelling and other expenses of lecturers or demonstrators who might come from a distance. If all these things were permitted the expense might, it was thought by the Finance Committee, be greater than the Council might deem advisable.

Mr. MALE : I should like to point out that the Branches have no funds, so that any expenses incurred in arranging Branch meetings would have to be paid by the members of the Divisions and would be very difficult to collect. In considering this matter you ought also to decide the extent and scope of these Branch meetings. It has been suggested that the Branch meetings should be important gatherings and should be made attractive, but this would involve a great deal of expense. I think, therefore, that before you decide on what money should be voted to these meetings you should first decide what should be the extent of the meetings. Perhaps one would depend on the other.

The HON. SECRETARY : Beyond the cost of the printing of the circulars, the recent meeting of the Northern Branch cost nothing ; there was no charge for the room.

The PRESIDENT : It seems to me that there does not need to be much more expense in connection with a Branch meeting than attaches to the holding of a Divisional meeting. The items of expense should be the same, unless you are going to sanction the preliminary printing and distribution of papers, the cost of which is heavy.

Major DUNKIN : I propose that the out of pocket expenses in connection with the arrangement of Branch meetings, such as the cost of reporting the proceedings, the hiring of a room, the printing and posting of notices of meetings, be paid for by the Association.

Mr. MALE : Could you add any sum to which we could go, say £10 per meeting ?

The PRESIDENT : The Treasurer suggests that as there are four Branches and the possibility of them not holding more than one meeting a year each, the sum of £5 per Branch be allocated, making a total of £20. We do not pay the expenses of readers of papers at the Annual meeting of the Association. Branch meetings are really the annual meetings of the Branches, as opposed to the Annual General meeting of the whole Association.

Mr. MALE : At one Branch meeting with which I was connected, a meeting at which three Divisions were represented, the expenses were £12.

Mr. AVESTON: I am sure that the Divisions composing the Branch would be willing for a Branch meeting to take the place of one of their ordinary meetings and that they would agree to finance a Branch meeting to the extent of the expenses of their ordinary meeting.

The HON. SECRETARY: The reason why there were no expenses on the occasion of the meeting of the Northern Branch was that the meeting was held on the occasion of the ordinary meeting of the Midland Division.

Mr. MCINTOSH: My own view is that something in the neighbourhood of £5 5s. ought to be sufficient. If you fix some such sum you could make provision for an appeal to the Finance Committee in the event of extra expense being contemplated for some special purpose.

Mr. MALE moved as an amendment, "That the expenses of holding Branch meetings be paid up to the sum of £10 per meeting."

Major CATMUR seconded.

Mr. AVESTON moved, as a further amendment, "That the expenses of holding Branch meetings be paid up to the sum of £5 per meeting, special application to be made for an increased grant in special cases."

Major KIRK seconded.

Mr. Male's amendment was lost, but that of Mr. Aveston was carried.

The PRESIDENT: We come back again to the substantive resolution, *i.e.*, the items for which those expenses may be charged. These are, in the terms of Major Dunkin's resolution, the printing and circulating of notices of meeting, secretarial expenses, hire of room and reporting fees; also such special items as may be considered under the previous resolution.

The proposition was put to the meeting and carried.

The Council then received and adopted the report of the Finance Committee and the Treasurer's statement.

EDITORIAL COMMITTEE. Sir JOHN MOORE (Chairman) read the following report of this Committee and moved its reception and adoption:—

Five meetings of the Editorial Committee have been held during the past quarter.

It is gratifying to be able to record that in this period the volume of material, particularly of a clinical nature, submitted to the Committee for their consideration with a view to publication, has exceeded that of any similar period during the Association's ownership of *The Veterinary Record*. This has necessitated not only the enlargement of the *Record* upon several occasions beyond the normal size of 32 pages, but the frequent employment of smaller type in order to work off the great accumulation of material in hand. In addition to original contributions, it has been deemed desirable to devote a great deal of space to reports received from Divisions of the important discussions which have taken place concerning the control of cows reacting to the tuberculin test.

Steady progress is shown by the *Record* on its advertising side and the Committee feel that the paper is at last carrying a number of advertisement pages which forms a very satisfactory proportion of the whole.

The Committee have had under consideration the question of utilising for the *Record* a paper of superior quality and finish which would take good reproductions of illustrations, thus doing away with the necessity for the use of art paper for this purpose. Specimen copies of the *Record* printed upon various qualities of paper were submitted, but the Committee decided that the very considerable increase in cost which would be involved in the employment of a paper of sufficiently good finish to meet their requirements rendered it inadvisable to make any change at the present time.

The Veterinary Record exchange list has been increased by the addition of the Russian "Modern Veterinary News," and arrangements have been made for abstracts to be made from this publication.

Mr. AVESTON, while congratulating the Committee on the production of a notably improved and most interesting weekly paper for the profession, suggested that deletion from reports should be made of obvious errors made by practitioners, such as had been recorded occasionally, which tended to lower the profession in the estimation of their medical friends who read the paper.

Mr. COLEMAN also expressed his appreciation of the *Record*, but desired to see the elimination of that objectionable and all too-frequent feature, "to be continued," which entirely destroyed continuity of interest.

The PRESIDENT said that he had no doubt that the Editorial Committee would bear in mind the points raised by Mr. Aveston and Mr. Coleman. It was gratifying to hear the members bear witness to the improvement in the *Record* and he was sure that they would be glad to hear that letters had been received at the office from many parts of the country which afforded convincing evidence that that improvement was noted and was very widely appreciated.

The report was adopted.

PROVISIONAL COMMITTEE. Mr. MASSON, the Chairman of this Committee, read and moved the reception and adoption of the following report:—

Since the date of the last Quarterly Meeting of Council, there has been one meeting of the Executive of this Committee.

It was very gratifying to report that the suggested openers of discussions on the papers had responded well to the invitation and the full list was finally agreed upon. (See *V.R.* for April 2.)

Social Programme.—General arrangements in this connection were made, including the provision of golf and tennis facilities throughout the Congress week, excursions, evening entertainments, etc. The Mayor and Mayoress of Torquay have kindly invited the members and their ladies to a Garden Party.

Ladies' Committee.—It was decided to form a Ladies' Committee and a suggested list of its composition was drawn up.

Trades Exhibition.—It was arranged to hold a Trades Exhibition as usual and a list of exhibitors was approved.

It was decided to alter the title of the Veterinary Inspectors' Section to that of "The Section of Veterinary Preventive Medicine."

Demonstrations.—The programme of Demonstrations was left over until the next meeting of the Committee.

The SUB-COMMITTEE appointed to arrange for headquarters hotel, halls for the meetings and accommodation for the demonstrations, met subsequently and chose the "Torbay Hotel" for headquarters, the Town Hall for the meetings, and the "Scala Garage" for the demonstrations.

Mr. NELDER seconded.

The PRESIDENT: I am sure that if any member of Council has any suggestions to make in regard to the programme of the Congress, the Provisional Committee will be very pleased to receive and consider them. I wish to express my own personal delight at the way in which the Committee is doing its work. I am quite sure that, when the time comes, and all you members are present at Torquay, you will have a great opportunity of appreciating what they have done and are yet to do.

The report was adopted, and it was agreed to accord a hearty vote of thanks to the Chairman of the Provisional Committee and to the Local Secretary for the work they are doing in this connection.

Under the heading on the agenda, "To consider the time of Council meetings," the President explained how it was necessary for him to decide upon the date and time of that meeting, and he had chosen the Wednesday evening as the lesser of two evils. He had put that item on the agenda in order that, should such a problem recur, he would be in a position to act upon their decision in the matter.

After some discussion it was agreed to leave the matter in abeyance for consideration at an early stage of the next Council meeting, as by this time a large number of those who were particularly interested in the matter had found it necessary to leave.

The PRESIDENT moved: "That the compilation of the Congress Handbook be referred to the Editorial Committee as one of its duties."

Colonel YOUNG seconded the motion, which was carried without comment.

RESOLUTIONS FROM DIVISIONS.

From the Western Counties' Division.—"The Western Counties' Division are of opinion that the time has arrived for the sale of Tuberculin to be controlled by the Government."

Colonel YOUNG: As, at this late hour, there are so few members present, I suggest that we postpone consideration of this resolution to the next meeting, at an early stage.

The PRESIDENT: I think that that suggestion will meet with general approval, and in support of it I may remind you that the Parliamentary Committee has this matter in hand, so that it is not being shelved, and I think that any action that we may take in this matter would receive the support of that powerful body the British Dairy Farmers' Association. (Applause.)

ANY OTHER BUSINESS.

Proceeding, the PRESIDENT said: There is one further matter upon which your opinion is desired. There are certain Standing Committees of the Association and on them there are members of the Association who are not members of the Council, and consequently they do not receive notices of meetings of Council. I should like you to decide as to whether or not those members of Standing Committees should have notices of meetings of Council supplied them, should be present at those meetings and (if the Council decides) take part in the deliberations of the Council. As members of the Standing Committees, their work would thereby be rendered much more interesting to them, for they would be able to follow it through to its logical conclusion.

It was agreed that members of Standing Committees should receive notices of meetings of Council and be invited to attend.

The proceedings terminated with the passing of a hearty vote of thanks to the President for his conduct in the chair.

DIVISIONAL REPORT.

Central Division.

The reading of a paper on "Ultra-Violet Radiation in Veterinary Practice," by Mr. F. H. Stainton, and the opening of the discussion by Dr. J. F. Halls Dally, attracted a good attendance to a meeting of this Division which was held at the Ashburton Rooms, 28 Red Lion Square, London, on Thursday, April 7th, 1927.

[This paper, which stimulated a good discussion, is reproduced at the commencement of this issue of the *Record*.—ED.]

The President, Major G. W. Dunkin, occupied the Chair, and there were also present, Dr. W. H. Andrews, Capt. L. S. Balls, Messrs. J. Bell, W. Brown, Capt. G. A. Bushman, Messrs. H. E. Bywater, E. L. Clarke, J. C. Coleman, A. Cornish-Bowden, Capt. Ross Grant, Major F. T. G. Hobday, Messrs. H. D. Jones, H. C. P. King, Herbert King, Major H. Kirk, Mr. G. H. Livesey, Captain C. J. Macara-Finnie, Professor J. McCunn, Mr. J. W. McIntosh, Professor J. Macqueen, Major-General Sir John Moore, Messrs. W. Perryman, R. A. Philp, Captain E. Brayley Reynolds, Mr. S. H. Slocock, Major P. W. Dayer Smith, Professor A. R. Smythe, Messrs. F. H. Stainton, J. Stephens, Capt. R. J. Stow, Mr. E. L. Stroud, Capt. W. K. Townson, Captain S. Villar, Messrs. F. W. Willett, J. Willett, J. D. Williams, Professor G. H. Wooldridge, Lieut.-Col. T. D. Young, and Captain J. F. Macdonald, *Hon. Secretary*.

Visitors.—Miss G. M. H. Hume and Miss Henderson Smith (of the Lister Institute of Preventive Medicine), Dr. J. F. Halls Dally, Messrs. L. B. A. Grace, H. W. Griffiths, J. H. L. Hobday, A. B. MacIntyre, A. Mackay and R. A. Willett.

The *Minutes* of the previous two meetings of the Division, which had been published in the *Record*, were taken as read and were signed as correct.

CORRESPONDENCE.

(1) Apologies for absence from Major C. Davenport, Captain Dunlop Martin and Major Leslie Pugh.

(2) From the Assistant Secretary of the British Hay Traders' Association. One, dated March 8th, advised the Division that a meeting would be held on March 16th, to which the Division was invited, to send a representative to consider if any and what steps should be taken to bring to public notice the facts of the undoubted increase in the use of horses on heavy transport for small loads and short journeys, and to correct the misleading statements which were so widely current on the subject. A second letter contained the information that a conference had been held, when it was decided to form a Committee on the subject. A further meeting had been arranged, it was stated, for May 17th and the Division was again asked to send a representative.

Mr. MCINTOSH, who attended the first meeting, presented the following report: "I attended as your delegate a meeting of the above Association, held at the 'Corn Exchange Chambers,' on March the 16th. About twenty were present.

"After a long discussion it was decided to form a small Committee for the purpose of drawing up certain concrete proposals on the lines indicated in the discussion for submission to a further meeting.

"I am of opinion, however, that very little can be done, unless the scope and interests represented at this meeting can be very much widened.—Yours faithfully, J. W. MCINTOSH."

The HON. SECRETARY read the following extract which appeared in the *London Corn Circular*, of March 21st, 1927:—

> A conference of Associations interested in horse transport was held on Wednesday at the offices of the British Hay Traders' Association, at which the subject of horse v. motor transport was discussed. Mr. Thomas Clark, of Middlesbrough, who presided, urged the importance of propaganda work being carried on among cartage and transport people. It was unanimously agreed that for long distances the motor beats the horse, but the general opinion was that for short journeys the horse not only could hold his own, but was more economical than mechanical transport. Mr. Jefferson explained that the Hull Corporation used a combination of the two, the horse transport being used for the inner circle, and motors for outlying districts with a long run. Another speaker mentioned that the Ilford Borough Council had decided to reinstate horses on the ground that their so doing would mean a saving of 5s. per ton. Mr. Charlton, representing the Shire Horse Society, gave some interesting details of the untiring efforts of his Society to popularise the horse, and was of the opinion that the animal itself is the best form of advertisement. The majority, however, favoured the view that nothing will appeal so much to a transport firm as proof that horses are more economical, and it was decided to appoint a sub-committee, which would ascertain from reliable sources actual comparative costs, so that effective propaganda could be prepared for placing before transport firms who use motors. Mr. Morris, representing, together with Mr. Maddy, the National Farmers' Union, was in agreement with the proposal, but emphasised the importance of obtaining conclusive evidence before starting operations. He, Mr. Charlton, and Mr. McIntosh, the last named representing the Central Veterinary Society, all agreed to place the matter before their respective Associations, with a request that each should nominate a representative to serve on the committee, *and should contribute to the cost of the Committee's work*. Others present at the Conference included representatives of the Association of Retail Corn Dealers, the Master Saddlers' Association, and the Lancs. and Cheshire Hay Merchants' Association.

The PRESIDENT: With regard to this correspondence from the British Hay Traders' Association, you will remember that Mr. McIntosh very kindly represented this Society at one of these meetings and they ask us, in their further letter, if we will appoint a delegate for the Conference on May 17th and also if we are willing to contribute towards the cost of the committee's work.

Mr. MCINTOSH: As indicated in my report, I attended, as your representative, a meeting of the British Hay Traders' Association. The meeting consisted of about twenty individuals, including representatives of the National Farmers' Union and the Shire Horse Society, mainly from London, and others from various parts. After a long discussion, without any concrete proposals, it was eventually decided that a small committee be appointed for the purpose of drawing up propaganda material on the lines of the discussion. The difficulty seemed to be the question of finance. I told the meeting that I would report to this Society the steps which it was proposed to take and that if the propaganda appealed to them it would be a matter for you to decide as to whether or not you would contribute anything towards the work. I expressed the view that it was for the agricultural community perhaps more than for any other body to associate themselves with a movement of this kind because the advance of the motor car is going to have a serious effect upon the breeders of animals and the growers of hay and corn. It appeared to me, however, that unless the scope of this body was very greatly widened nothing much could be done. Propaganda costs money and unless this is forthcoming it is not possible to do much. At the same time, I think it might be well to send a delegate to the next meeting and see what form the propaganda assumes and what developments have taken place.

After a brief discussion it was decided that the Division should be represented at the meeting in May, and Mr. McIntosh and Mr. Perryman were appointed to attend. The Division could not at the moment promise any financial support.

Nominations.—Messrs. L. B. A. Grace and W. T. Ferguson were nominated as Fellows of the Division, and as an Honorary Fellow, Captain S. J. Motton, of Penzance.

Election.—The election as a Fellow was made of Major R. F. Wall, of Bayswater.

The PRESIDENT, in informing the meeting of the decision of the Council to recommend the election of Captain Motton, said that he would like to remind the members of the very excellent paper read by Captain Motton at a recent meeting. Since then, Captain Motton had been approached as to his expenses, and he had very generously refused to charge the Society anything, adding that he felt it a great honour to have been asked to present a paper before it, and that he enjoyed the meeting immensely. (Applause.)

The meeting passed a very hearty vote of thanks to the Principal of the Royal Veterinary College for the loan of the room at the Research Institute, at which the meetings of the Division had been held during the period of refurnishing of the Council Chamber of the R.C.V.S.

The PRESIDENT, after extending a hearty welcome to the visitors, with particular reference to Miss Margaret Hume and Miss Henderson Smith, called upon Mr. Stainton to present his paper.

At the termination of the discussion a hearty vote of thanks was accorded Mr. Stainton for his paper, Dr. Halls Dally, for opening the discussion and Miss Hume for her helpful participation therein.

The proceedings concluded with a similar tribute to the President for his conduct of the meeting.

J. F. MACDONALD.
Hon. Secretary.

At a meeting of the Yorkshire Agricultural Society, held on April 12th, it was decided to make a grant of £200 towards the rebuilding and equipping of the Royal Veterinary College.

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Sept. 12-17th.—N.V.M.A. Congress at Torquay.

April 25th—Meeting of the Editorial Committee N.V.M.A. at 4-30 p.m.

April 29th—Meeting of the Mid-West and South Wales Division at Bath.

April 29th—Meeting of the Yorkshire Division at Leeds, at 3-30 p.m.

THE R.V.C. REBUILDING FUND.

We are glad to be able to inform our readers that Princess Mary, Viscountess Lascelles, has graciously consented to attend the Championship Dog Show, which will be held at the Crystal Palace, in aid of the fund for rebuilding the Royal Veterinary College, Camden Town, N.W.1. Her Royal Highness will present most of the Championship prizes on the afternoon of Oct. 28.

PERSONAL.

Sir Arnold Theiler.—"Sir Arnold Theiler, who," says *The Evening Standard*, of April 13th, "has just retired from the post of of Director of Veterinary Education and Research to the Transvaal, was universally known as the friend of the world's animals (says the Central News Johannesburg correspondent)."

"On being appointed in 1900, Government veterinary bacteriologist, after filling other minor posts, he began seriously to tackle that troublesome disease known as 'horse sickness,' and also bacterial diseases in stock.

"He would see a sick animal in the town, follow it for miles out into the country, and if it died would hold a *post-mortem* and find out the exact cause of death. He had a tiny laboratory at Daspoort, where he carried out his investigations.

"In 1904 Sir Arnold introduced for the first time a method of inoculating mules against horse sickness and four years later the method was taken up with a view to immunising sheep from blue tongue, followed by a method of vaccination.

"The Imperial Government recognised the value of Sir Arnold's work, and in 1907 they conferred upon him the distinction of Companion of the Order of St. Michael and St. George. He was raised to the dignity of a knight in 1914.

"Sir Arnold, although now sixty years of age, is to continue research work. According to the Johannesburg *Star*, he proposes to spend a year at the University of Basle in connection with researches already commenced by him on the pathology of bones."

. . . . . .

Will.—CHAMBERS, Mr. Sam (63) of Croft House, Kirkheaton, near Huddersfield, veterinary surgeon (net personalty £1,477), £1,612.

. . . . . .

Birth—HARE. On Good Friday, at the Vicarage, Knotty Ash, Liverpool, to Joyce, wife of Tom Hare, M.D., B.V.Sc., M.R.C.V.S., a daughter.

Peer's Gift to Liverpool University.

"Lord Howard de Walden has," says the *Liverpool Post*, of April 13th, "presented to the University of Liverpool the sum of £2,000 for the purpose of providing Welsh boys and girls with a course in veterinary science. The generous donation has elicited a further subscription of £2,000 from other sources.

"This announcement was made by Professor Share Jones, Director of Veterinary Studies at Liverpool University, at the George Edward Memorial Hall, Cefn Mawr, last night, where the Imperial Welsh Singers were giving an entertainment.

"Lord Howard de Walden was present, and Professor Share Jones referred in eulogistic terms to his generosity in providing the boys and girls of Wales with the means of studying this branch of science."

Notanda.

It was, once upon a time, a countryman's trick to bring a cat to market in a bag, and substitute it for a sucking pig in another bag if he got the chance in dealing with the unwary. If the trick was discovered it was called letting the cat out of the bag; if not, he that made the bad bargain was said to have bought a pig in a poke. (*Cat Gossip.*)

. . . . . .

Filarial embryos have been demonstrated by Mazza in the peripheral blood of approximately 30 per cent. of dogs in Northern Argentine. (*Trop. Vety. Bull.*, Vol. 14-4.)

. . . . . .

The lachrymal duct of fowls is prone to become obstructed as a result of colds and roup. In ordinary cases the duct can be opened by carefully passing a quill through it. (*Vety. Med.*)

. . . . . .

Trypan blue in 1 per cent. solution and 10 to 20 cc. dosage has been successfully used in the treatment of canine piroplasmosis. (*Idem.*)

. . . . . .

In 1874 Hansen discovered the bacillus of leprosy. In the same year salicylic acid was isolated by Kolbe.

. . . . . .

In 1884 Nicholaier discovered the tetanus bacillus.

H. K.

Whole-time Veterinary Inspector for Herefordshire.

At a recent meeting of the Diseases of Animals Committee of the Herefordshire County Council, a special sub-committee reported that their representatives had conferred with representatives of the City Council on the question of the appointment of a full-time veterinary officer, who would carry out the work throughout the county and city on behalf of both authorities and, agreement having been reached, the sub-committee recommended such appointment. The officer would carry out the work necessitated under the Milk and Dairies Acts and Orders, and would be responsible to the County Council and its committees solely for work under the direct control of the County Council, and to the City Council and its committees for all work under their control. The salary recommended was £500, 22½ per cent. payable by the City authority and the remainder by the County Council. The travelling expenses would be paid by the County Council, and the office accommodation expenses borne by each authority in the same proportion as the salary.

The report was adopted.

Glasgow Students Visit Contractors' Premises.

On the invitation of Messrs. Wordie and Company, railway and general contractors, over 30 students, including four ladies, gathered on March 26th, at Weir Street, where the forage department is housed. The students, accompanied by several of their Professors, including Principal Whitehouse, were received on behalf of the firm by Mr. James Macfarlane, M.R.C.V.S., their whole-time veterinary surgeon and horse superintendent. A brief resumé of the firm's history was given, and the students were shown over the stock of hay and grain. They next visited West Street stables. These are a splendid example of modern stable construction to ensure the comfort and health of the animals housed therein and their safety from fire and infectious disease. The necessity for yard room for vehicles was pointed out, and how, if necessary, the present accommodation could be doubled by the use of elevators or electric travelling cranes. The smithy and the saddler's shop were visited, and one of the electric horse clipping machines was shown in action, whereby four horses can be half-clipped every hour.

In the stables the various types of horses were pointed out, particular reference being made to any animals with a specially interesting history; while special attention was drawn to 14 heavy Clydesdales bought in during the previous week.

Next followed several animals, interesting from a purely veterinary point of view. A horse that through masonry falling on him while at work during the recent heavy gales had his nose badly broken was among them, looking very fit. He had missed instantaneous death by six inches, and though several large pieces of bone were removed, the head was practically whole again and the animal back at his work.

After visiting another stable, the party went to the Veterinary College, where tea was served. The party was joined by several veterinary surgeons, including Mr. Campbell, President of West of Scotland Division of the National Veterinary Medical Association. After tea, a general discussion took place on the demonstration, several students taking part.

On the motion of Mr. M'Donald, a hearty vote of thanks was accorded to Messrs. Wordie and Company.—*The Scottish Farmer.*

A Queer Hotel Bill.

A very interesting bill can be seen on the mantelpiece of the smoking room of the "Wellington Hotel," Welwyn. It is dated 1888, and reads:

Ostlersbill.

	s.	d.
Osarfaday ... ... (Horse half a day)	10	0
Aforos ... ... (Hay for horse)	2	0
Anaputimingin ... ... (And a putting him in again)		6
Totle bill	12	6

Army Veterinary Service.

London Gazette. War Office. Territorial Army.

April 19th—The following Captains to be Majors: W. B. Howe, R. H. Stalker (July 1st, 1926); G. E. Oxspring (October 18th, 1926), with seniority July 1st, 1926; G. K. Shaw (July 1st, 1926), and remains secd.; H. J. Hughes, M.B.E. (October 18th, 1926), with seniority July 1st, 1926; E. S. W. Peatt, O.B.E., F.R.C.V.S. (July 1st, 1926); C. P. Johnson (late Officer Cadet, Sheffield University Contingent, Senior Division, O.T.C.) to be Lieutenant (April 20th).

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.
All correspondence must bear the name and address of the contributor for publication.
The Editor does not hold himself responsible for the opinions of his correspondents.

Leukæmia in the Dog.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—May I trespass upon your space in order to invite Professor Share-Jones to enlarge upon the report of his very interesting observation (*Veterinary Record*, 1927, vii. 333) ? Would the Professor kindly give details of (1) the blood examinations made, (2) the macroscopic and microscopic findings at autopsy, and (3) the temperature chart ?

Until these *data* are published, I fear that your readers will not find it possible to subscribe to the Professor's conclusions.—I am, Sir, Yours, etc., TOM HARE.

The University of Liverpool,
April 11th, 1927.

The R.V.C. Fund.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—Nearly every hospital now has one or more beds supported by the sale of waste tin foil. Some hospitals have a box at the entrance of the hospital into which pieces of tin foil can be dropped. Why should not the Royal Veterinary College do likewise and yearly obtain some money towards its upkeep ?—Yours faithfully, T. F. PRIME.

Upper Norwood, S.E.
April 7th, 1927.

Eradication of Tuberculosis.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I was pleased to read in the last issue of the *Veterinary Record* that the Ayrshire Division of the N.V.M.A., at its meeting on February 17th, came to the conclusion that there should be compulsory testing of cattle and that the reactors should be at least branded ; also that tuberculin should be standardised and its sale controlled—otherwise all efforts now being made will be, so far as the public is concerned, a waste of money. All those who are interested in the question should pay particular attention to the remarks of Dr. J. A. Kiernan, reproduced in the same issue of the *Veterinary Record*. It seems to me that his concluding remarks should form a basis on which the profession should tackle the problem of freeing our herds of this long-continued, increasing and widespread malady. Probably subsidising farmers for having a tubercle-free herd would save the country a great deal of the money it is spending on the fruitless wild-cat scheme it is now pursuing.

Agriculture looks to veterinary science for its guidance. The question of whether meat or milk of tuberculous bovines is dangerous to man is not within our province. That is the responsibility of medical science. Our vocation is to keep the animals of these islands free from disease.

It is on record in leading textbooks that this country in former days spread the disease to every herd in those countries which imported our pedigree stock to improve their indigenous breeds. We are now, at this time, being told we have the rottenest cattle in the world.

" *En ces derniers temps, la tuberculose est répandue dans le monde entier avec le bétail Anglais infecté.*" This was not written yesterday !—Yours faithfully, HENRY GRAY.

1 Redfield Lane,
S.W. 5.

The Editor acknowledges the receipt of the following :—Communications from Major P. M. Edgar, Messrs. J. C. Coleman, H. Gray, R. L. Higgins, T. R. R. Hoggan and R. E. Montgomery.

National Veterinary Medical Association of Great Britain and Ireland.

EDITORIAL OFFICE : 10 Gray's Inn Square, London W.C.1.
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